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Nursing Students' Assessment Ratings and Treatment Choices For Patients Experiencing Pain in a Case Vignette: Implications for Nursing Education

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To the Graduate Council:

I am submitting herewith a dissertation written by Crista Briggs entitled "Nursing Students' Assessment Ratings and Treatment Choices For Patients Experiencing Pain in a Case Vignette: Implications for Nursing Education." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Instructional Technology and Educational Studies.

Russell French, Major Professor

We have read this dissertation and recommend its acceptance:

Judy Boser, Schuyler Huck, Sandra Thomas

Accepted for the Council:

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Vice Provost and Dean of the Graduate School

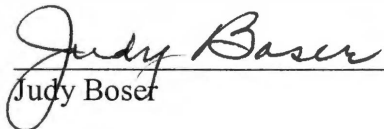
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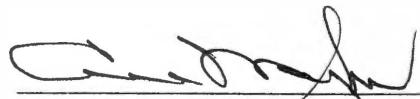
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For Patients Experiencing Pain in a Case Vignette:
Implications for Nursing Education

A Dissertation
Presented for the
Doctor of Education Degree
The University of Tennessee, Knoxville

Crista Briggs
August 2004

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DEDICATION

This dissertation is dedicated to my husband, Kevin Briggs;
my parents, Steve and Vickie Mefford;
my brother, Seth Mefford, and the rest of my family
for their love, support and encouragement.

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Highest praise to my Lord, Jesus Christ, the Great Physician whose love surpasses all understanding. Thank you for allowing me to experience your love, hope, mercy, peace, and forgiveness.

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ABSTRACT

Patients' pain has not been adequately controlled due to inaccurate assessments, inadequate treatments, and inconsistent nursing care. The purpose of this study was to examine nursing students' assessment ratings and treatment choices for patients experiencing pain in a case vignette. Data collected from junior nursing students (prior to formal classroom instruction) compared to senior nursing students (one year after initial instruction) provided implications for nursing education, as well as conclusions about the understanding of pain assessment among student participants. The sample consisted of 270 junior and senior nursing students from two schools of nursing in East Tennessee, representing 95 percent of the identified population. The methodology included a descriptive design with a survey approach, utilizing a patient behavior case vignette and a demographic questionnaire for data collection. McCaffery and Ferrell, pain management experts, designed the case vignette instrument.

A majority of students participating in the study rated the pain correctly for both patients in the case vignette; however, 17.78 percent fewer students correctly rated pain for the patient who displayed atypical behavioral manifestations, such as smiling, laughing, and joking with a visitor. A majority of the students, at both program levels (junior/senior), rated the patients' pain correctly; however, senior students at both schools of nursing were more prepared than junior students to assess, rate, and document pain in the case vignettes. Ratings of pain intensity were also disaggregated for nine subcategories of the entire respondent group.

There was not a strong connection between choosing the correct pain intensity rating and choosing the recommended dosage of analgesic. The principle of accepting,

respecting, and documenting the patient's self-report of pain was only one of the various rationales provided by students in this sample for correctly rating pain intensity.

Nursing faculty's efforts to dispel myths and encourage adequate pain control through the curriculum have been only partially effective. The results of this study, as well as reports from other studies identified in the literature, suggest that education fosters some increase in knowledge, which leads to improved decision-making about pain management. However, it appears that current educational interventions are not sufficient.

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Chapter One

INTRODUCTION

Background

For years, people have debated about the issues of pain assessment and pain management. There are many factors influencing the decisions of how to best care for patients in pain. One of the hindrances to effective pain assessment is the inability to measure and monitor the presence or intensity of pain with any mechanical device. This leaves healthcare providers responsible for assessing and treating pain based on verbal and nonverbal communication. Behavioral manifestations often contribute to the way pain is perceived by healthcare personnel. Previous experiences, reactions by other patients in similar situations, and personal pain experiences all provide a basis for decision making. The problem of inconsistency in the nursing process lies in the various backgrounds and beliefs of each individual nurse. Demographic variables such as educational preparation, specialty areas, and personal experience caring for others in pain are relevant factors identified in the literature that may influence nurses' responses to and beliefs about pain (Brunier, 1995). Three nurses, given the same patient scenario, may respond by recording inconsistent assessments and administering different amounts of medication because of their own personal biases about pain. When treatment decisions are made based on patients' behavioral responses at the exclusion of subjective reports, misinterpretation is likely to occur.

Much of the change in theory and practice regarding subjective pain assessment using numerical rating scales can be attributed to the work of Margo McCaffery, a leading pain expert who conducts research all over the United States. She creates

instruments, holds workshops, and disseminates information in an effort to educate healthcare professionals about accurate pain assessment and treatment. She is well known for her definition of pain: “Pain is what the experiencing person says it is, existing whenever he says it does” (McCaffery, 1968).

Best Practices: A Guide To Excellence in Nursing Care supports the following subjective pain assessment technique: “Ask the patient to rank his pain on a scale of 0 to 10, with 0 denoting lack of pain and 10 denoting the worst pain level. This helps the patient verbally evaluate pain therapies” (Schilling, 2003).

Sofaer (1985) declares the importance of nursing education related to the inference of pain in these two statements:

1. “Do not judge the appropriateness of a patient’s behavior in relation to his pain.”
2. “Have no expectations in relation to patient’s response to a particular pain therapy. What works for one patient may not work for another” (p. 70).

Despite the dissemination of information via journals, formal lectures, staff development classes, etc., the issue of inaccurate assessment and discrepancy between patients’ reports of pain and the nurses’ perception of that pain, continues to be a problem. Typical or expected behaviors that accompany pain include moaning, grimacing, and guarding of the painful area. But what if a patient does not exemplify these behaviors, yet, reports a high pain intensity level? Are nurses placing value judgments on behavioral manifestations such as laughing, smiling, and talking with a visitor before stopping to interpret and analyze the basic data gathered through the history and physical assessment?

A 2002 study by Peter Chuk addressed those questions by presenting 198 senior nursing students in Hong Kong with two case vignettes. In one vignette, the patient displayed expected or typical behavioral manifestations, while the other patient expressed unexpected verbal and nonverbal reactions to pain. Students were asked to rate the patient's pain intensity on a numerical rating scale. In both cases, the patient rated his pain intensity as '4' on a 0-5 scale with zero representing no pain and 5 signifying the worst pain imaginable. Results showed significant differences ($p < 0.01$) in pain ratings documented by the senior students for the two scenarios. The objective signs of pain overruled the patient's own self-rating in the responses of 59.2 percent of the students (Chuk, 2002).

Using the original version of the same pain control vignette, McCaffery and Ferrell (the pain experts who developed this instrument) administered this tool to 456 hospital staff nurses in six cities of the United States. Results showed only 40.7 percent of the nurses recording the smiling patient's pain as '4' and 71.6 percent recording the grimacing patient's pain as '4.' "A simple behavior such as smiling or grimacing isn't strong enough evidence to conclude that a patient's pain rating is anything other than what he says it is. In fact, research has repeatedly shown that many patients with pain deliberately smile or laugh, either to help themselves cope with the pain or to try to hide their pain from others" (McCaffery & Ferrell, 1991, p. 37).

Nurse educators must be diligent in their efforts to dispel myths and personal bias about pain assessment early in the nursing curricula to increase the number of clinicians who accurately report their patient's pain and treat it to the fullest extent granted. Students do not enter nursing school as clean slates; they are adult learners who already

have opinions about pain management. Throughout life, personal encounters with painful experiences contribute to one's knowledge, beliefs, and attitudes. Oftentimes, inaccurate information and personal experiences lead to misconceptions that hinder the implementation of appropriate comfort measures. People are sometimes afraid to intervene with pharmaceuticals. There are many possible explanations for the reluctance to use opioid medications for pain relief. Inflated fears about addiction may be credited to media stories including those about people who abuse narcotics. Much of the negativity toward opioid medications, such as morphine, may stem from America's "Just Say No" anti-drug campaign. If these common errors are intercepted and addressed early in the course of study, graduates will enter the workforce empowered with accurate and current information. In most cases, pain can be controlled or alleviated. Misconceptions and bias on the part of the nurse should not continue to keep patients from receiving the treatment they deserve.

In order to address these issues early in a nurse's career, nursing faculty must assess students' knowledge and attitudes upon entering the program. Curriculum and instruction should not only include pathology and treatment of pain, but also current research, common misconceptions held by nurses, and learned potential inhibitors of pain management. As students progress through the program, it is anticipated that they will no longer hold negative attitudes about opioid medications, have exaggerated fears about addiction, or have biases toward patients who do not show typical signs of pain. Education serves as a kind of clarifying lens that can offer students the tools necessary to clearly distinguish truth from fiction. If this intervention is effective, students will advance and patients will be less likely to suffer with pain unnecessarily in the future. If

this advancement does not occur and students continue to have inadequate knowledge, showing that they cannot accurately assess and treat pain without bias, curriculum evaluation may be warranted.

Problem

No study, to date, has examined the pain assessment ratings and treatment choices of junior nursing students (prior to formal classroom instruction) compared to senior nursing students (one year after initial instruction) to determine the efficacy of curriculum and instructional methods within schools of nursing. Studies have shown that insufficient knowledge, premature judgments, and misconceptions contribute to improper assessment and treatment decisions in staff nurses; however, it is not known if these issues are being sufficiently addressed early in the educational program to prevent new graduate nurses from making common errors. This study addressed this gap in the literature.

Purpose

Although the literature has thoroughly documented inadequate nursing knowledge, beliefs, attitudes, and practices in the area of pain assessment, most studies have focused on the practicing nurse. Only one study, to date, has addressed the issue of pain assessment accuracy in nursing students using a clinical vignette approach (Chuk, 2002). That particular study was conducted in Hong Kong. The current study attempted to replicate some aspects of Chuk's design to determine if similar results were found in a sample of nursing students recruited from The University of Tennessee and Tennessee Wesleyan College. However, the study went beyond the scope of Chuk's 2002 study to compare two groups at different points in the curriculum.

The study examined nursing students' assessment ratings and treatment choices for two patients experiencing pain in a case vignette. The instrument was similar to the one used by Peter Chuk in Hong Kong. Narrative data were also collected from students to determine the rationale for their responses. The demographic questionnaire assisted the researcher for the purpose of disaggregating data for analysis.

Design of the Study

Specific research questions addressed in this study were as follows:

1. To what extent do nursing students correctly rate patients' verbal reports of pain intensity in two case vignettes?
 - 1.a. How do ratings of pain in two case vignettes differ according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences?
2. To what extent do students, who correctly rate a patient's stated pain intensity, also correctly administer the recommended dosage of analgesic under the conditions provided in the case vignette?
3. What rationales do students identify for their correct and incorrect ratings of pain intensity and medication administration in the case vignettes?

Theoretical Framework

Two frameworks were chosen to guide this study. The first was Patricia Benner's 'Novice to Expert' theory and the second was Mary Elizabeth Greipp's 'Model of Ethical Decision Making in the Management of Client's Pain' (See Appendix A). Benner's theory has been referenced in numerous nursing research studies and it lends itself particularly well to the student nurse because of its focus on progressive learning.

Benner defined levels of expertise in five areas: novice, advanced beginner, competent, proficient, and expert (Benner, 1982). This theory promotes lifelong learning and advancement through education.

Greipp's model is an ethical framework designed to show global connections between nurse and client interactions when pain management decisions are made. The model identifies learned potential inhibitors for effective pain relief including personal and professional experiences, culture, and belief systems. These inhibitors can be present in the nurse, the patient, or both parties. Greipp illustrates the role of education and the importance of a strong knowledge base to improve pain assessment and management (Greipp, 1992).

Methodology

The population included all Junior and Senior nursing students at Tennessee Wesleyan College-Fort Sanders Nursing and The University of Tennessee (n = 284 students). The sample consisted of all those who were present and willing to participate on the day of data collection (n = 270 students). Junior and Senior students were selected because these are the years in which nursing students begin their upper division nursing courses after having completed two years of general education requirements and prerequisites.

In this study, data were analyzed based on the student's program level. Juniors had not encountered formal classroom instruction on pain management in the curriculum at the time of data collection, whereas seniors first received this instruction approximately one year before. Data collected from the two separate groups at different

points in the program (one year apart) provided information about the effectiveness of the programs' curricula and the adequacy of instruction.

The major instrument used in this study was a 'Patient Behavior Case Vignette' developed by Margo McCaffery and Betty Ferrell, often referred to as the 'Andrew-Robert Survey'. A demographic questionnaire, developed by the current researcher, supplied additional data about the participants. Responses to these instruments provided data necessary to answer all research questions.

The case vignette requested that participants in the study read two patient scenarios and answer four questions after each case was presented. Participants were asked to do the following: A.) rate the patient's pain intensity level on a 0-10 numerical rating scale; B.) provide a rationale for recording this pain level; C.) select a dosage of pain medication from a range of choices; and D.) provide a rationale for the dosage of medication chosen. In an effort to obtain narrative statements to answer research question #3, this researcher added questions B. and D. to the tool: 'What influenced your decision and led you to record this intensity level' and 'What influenced your decision and led you to choose this dosage of pain medication.'

The researcher chose the case vignette instrument because the data it yielded related directly to the research questions. Question A from the instrument states, 'On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of (Andrew's/Robert's) pain.' Quantitative results from this question provided data to answer research questions #1, #1.a., and a portion of #2. Questions B and D on the instrument provided qualitative data for answering research question #3. Question C asked respondents to check the action they would take in regard

to treatment. These data were linked with the results from Question A to determine if students who correctly recorded pain intensity also correctly administered the recommended dosage of medication. This linking process supplied data necessary for answering research question #2.

A demographic questionnaire was developed by the researcher and attached to the case vignette tool during data collection. The questionnaire not only classified students by nursing school, program level, gender, ethnicity, and age, but also elicited information about formal education in pain management prior to nursing school, personal pain experiences, and caring for others with pain. This information assisted the researcher when results were disaggregated to create a response to question 1.a.

The case vignette instrument was selected based on its relevance to the research questions and its wide use in other studies. The demographic questionnaire was developed after reading several related articles pertaining to pain assessment. Personal traits of nurses are commonly referred to in the literature and often make a difference in the way they respond to patients experiencing pain (Allcock, 1996).

Permission to use and reproduce the vignette was granted by Margo McCaffery. On the City of Hope website, Ferrell and McCaffery discussed the validity and reliability of the vignette instrument. A panel of experts in pain management established content validity. The vignette was pilot tested at workshops with at least 100 participants. Further psychometric testing for test-retest reliability has not been conducted.

Data Collection

Data were collected in November 2003 when Junior students were in their first semester of nursing classes. Junior students, at the two schools of nursing, had not

formally encountered pain management in the 'Foundations of Nursing' course at the time of data collection. Senior students first encountered this content in the curriculum approximately one year before. Seniors were scheduled to graduate the following May. To prevent the possibility of social desirability response bias, a senior faculty member administered the instruments to the senior nursing students at TWC-FSN since the researcher taught the pain content in their junior year. The researcher administered all other surveys in student classrooms at The University of Tennessee and Tennessee Wesleyan College-Fort Sanders Nursing. The researcher invited all students to participate. Those who completed the instruments were assured confidentiality in their responses and guaranteed no punitive action if they chose not to participate. An informed consent form was attached to the surveys (See Appendix B). Signing this form signified a student's willingness to participate. Most students completed the surveys within ten minutes; however, extra time was allotted when necessary. To overcome order effect, approximately half of the students randomly received an instrument with Patient A (typical behavioral manifestations) listed first and the other half received a survey with Patient B (atypical behavioral manifestations) listed first. Students were encouraged to be honest in their answers and not to discuss their responses with classmates while completing the survey. Because there was a short time gap between data collection in the groups, students were asked not to discuss their responses or rationales with other students until all data was retrieved.

Assumptions

This study was based upon the following assumptions:

1. The researcher, who taught nursing students at Tennessee Wesleyan College-Fort Sanders Nursing, introduced no bias into the study.
2. Participants were representative of the population of nursing students at Tennessee Wesleyan College and The University of Tennessee.
3. The responses to the case vignette instruments were honest and representative of reactions students would have in a real clinical situation.
4. Case vignette responses denoted as correct were commensurate with current literature, teachings, and clinical practice standards.
5. Participants had enough education and experience at the time of data collection to recognize and understand the concepts presented in the case vignettes.

Limitations

1. Findings and conclusions of the study were limited by the content of the instrument.
2. Participants were limited to those who were present and willing to respond to the clinical vignette on the day it was administered.
3. Findings of the study can only be generalized to the two groups of baccalaureate nursing student participants at Tennessee Wesleyan College and The University of Tennessee.
4. Responses from participants who were previously exposed to the case vignette instrument could alter the results of the study.

5. The two nursing departments chosen for the population were conveniently selected based on proximity of the researcher to the schools.
6. Results were based on responses to a hypothetical patient situation. There is no certainty that students would have had the same response in an actual clinical situation.
7. The participants of the study consisted of two different groups of students. This could influence any conclusions about pain assessment curriculum and/or instruction in the two schools of nursing.

Delimitations

1. The sample was limited to basic students. Responses from registered nurses returning to school for a BSN were not tabulated.
2. The study boundaries were limited to two groups of students at two schools of nursing in East Tennessee.
3. Data used in the study were limited to the information provided in the case vignette instruments and the attached demographic questionnaire. The case vignette does not allow for alternate measures of treatment other than the medication ordered by the physician.

Importance of the Study

This study provides valuable information about students' knowledge and beliefs about pain assessment. Themes and findings lay groundwork for future research in nursing education.

Many patients suffer unnecessarily from pain because nurses are simply misinformed and hold incorrect attitudes and beliefs. Nurses mistakenly play the role of

‘pain police’ and make judgments about the truthfulness of patient’s statements. Many schools of nursing do not assess for myths and misconceptions that students may possess before they delve into curricular content. The benefits lie in the implications for nursing educators and for the betterment of society. If students are taught to accept and respect subjective reports of pain intensity, instead of depending on behavioral or physiologic factors, patients are empowered. This can be accomplished through restructuring the curriculum and incorporating innovative instructional methods. If educators begin to address these issues early in the course of study and students graduate knowing facts instead of holding tightly to their myths, social change is likely to occur.

Nurse educators are in a unique position to indirectly affect the lives of thousands of patients. The curriculum, and the manner in which it is presented, serves as a medium for knowledge construction, fact clarification, and attitude transformation. If educators present inadequate information or use ineffective instructional methods, graduates may enter the workforce unprepared for the challenges that lie ahead.

Definition of Terms

For the purpose of this study, the following terms required clarification:

Analgesia: conscious alleviation of pain.

Assessment: “A systematic, dynamic process by which the nurse, through interaction with the client, significant others, and health care providers, collects and analyzes data about the client. Data may include the following dimensions: physical, psychological, sociocultural, spiritual, cognitive, functional abilities, developmental, economic, and life-style” (American Nurses Association, 1991, p. 7).

Atypical Behavioral Manifestations: Failure of a person to exhibit typical behavioral manifestations and/or engaging in the following: laughing, joking, visiting with others, smiling.

Curriculum: “Formal and informal content and process by which learners gain knowledge and understanding, develop skills, and alter attitudes, appreciations, and values under the auspices of that school” (Dolls, 1996, p. 15)

Evaluation: “The process of determining both the client’s progress toward the attainment of expected outcomes and the effectiveness of nursing care” (American Nurses Association, 1991, p. 7).

Health Care Providers: “Individuals with special expertise who provide health care services or assistance to clients. They may include nurses, physicians, psychologists, social workers, nutritionists/dieticians, and various therapists. Providers also may include service organizations and vendors” (American Nurses Association, 1991, p. 8).

Numerical Rating Scale: “The patient is asked to rate pain from 0 to 10, with zero equaling no pain and 10 equaling the worst possible pain. Scale may be presented visually with numbers placed along a vertical or horizontal line. Recommended for use in clinical practice” (McCaffery & Pasero, 1999, p. 36).

Nursing Process: Decision-making model used by nurses that includes five stages: Assessment, Diagnosis, Planning, Implementation, and Evaluation.

Opioid: “Opioid refers to codeine, morphine, and other natural semisynthetic, and synthetic drugs that relieve pain by binding to multiple types of opiod receptors in the nervous system” (McCaffery & Pasero, 1999, p. 36).

Pain perception: “The process of recognizing, defining, and responding to pain”

(McCaffery & Pasero, 1999, p. 16).

Standards of Nursing Practice: “Authoritative statements that describe a level of care or performance common to the profession of nursing by which the quality of nursing practice can be judged” (American Nurses Association, 1991, p. 21)

Titration: “Adjusting the amount (e.g., adjusting the dose of opioid)” (McCaffery & Pasero, 1999, p. 36).

Typical Behavioral Manifestations: Behaviors that one expects to see manifested by someone experiencing pain which may include one or all of the following:
guarding of the painful area, moaning, sighing, crying, grimacing, restlessness, decreased mobility, anxiety, social withdrawal.

Chapter Two

REVIEW OF THE LITERATURE

Introduction

Pain management issues surface early in a nurse's career, often as early as nursing school. Although some advancement has been made, knowledge deficits and misconceptions held by nurses, patients, and family members continue to inhibit pain relief and limit quality of life. The available literature points to numerous reasons why this situation continues to exist in healthcare. Reasons cited include myths held by the general public, exaggerated fears about addiction, and knowledge deficits. Nursing faculty can address these concerns by providing current, accurate information and correcting misconceptions held by students. Nursing education can help dissolve the misunderstandings and mismanagement of pain that continue to linger today.

The literature attributes pain management problems to inadequate education, societal influences, outdated reference materials, and cultural barriers. Though many studies have been conducted and disseminated through nursing journals over the past twenty years, patients continue to suffer unnecessarily.

The National Institute of Nursing Research categorizes problems with pain management into four major areas: 1. 'Difficulty in assessing pain' 2. 'Inappropriate management of pain with analgesics' 3. 'Minimal use of nonpharmacologic strategies,' and 4. 'Failure to evaluate effects of treatment' (NIH, 1994, p. 169). Nurses often fail to ask patients about their pain intensity levels during assessments and cease to use measuring tools to improve continuity of care. They mistakenly rely upon diagnoses or the type of surgical procedure to determine the amount and type of pain relieving

medication to administer. Pain often goes unrelieved because nurses do not reassess and adjust the dosage of analgesics when results are not therapeutic (NIH, 1994).

For the purposes of this study, this operational definition of pain is used, “Pain is whatever the experiencing person says it is, existing whenever he says it does” (McCaffery, 1980). This definition empowers patients and requires nurses to accept and respect self-reports of pain. Although patients in acute pain typically portray physiologic signs such as increased heart rate and blood pressure, or behavioral signs such as frowning and guarding the painful area, the absence of these manifestations is not synonymous with absence of pain (McCaffery, 1980). At times, patients may intentionally or unintentionally mask their expression of pain for various reasons. Fatigue, self-control of pain through relaxation techniques, and methods of distraction such as humor often obscure or dilute the expected behavioral and physiologic signs. Thus, it is crucial for nurses to understand that pain is a subjective experience and differs with each individual. Accepting subjective reports, without making judgments based on physiologic or behavioral manifestations, is key in the pursuit of effective pain management (McCaffery, 1980). As cited on the United States National Library of Medicine website, “The single most reliable indicator of the existence and intensity of acute pain, and any resultant affective discomfort or distress, is the patient’s self-report” (USNLM, 2003).

Responsibility & Accountability for Competence: Pain Management Standards

Nurses serve as the cornerstone of pain assessment and management in healthcare settings. For this reason, competency standards have been set for nurses to follow in order to show responsibility and accountability. Clinical practice guidelines have been

developed by the Agency for Healthcare Policy and Research (AHCPR), identifying three knowledge areas that all nurses caring for patients with pain should possess including:

1. "The patient's self-report of pain is the single most reliable indicator of pain intensity. Vital signs and behaviors should not be relied upon instead of self-report. Teach the patient how to use a pain rating scale and record the number reported by the patient" (AHCPR, 1992 & 1994).
2. "When a dosage of an opioid is ineffective and does not produce negative side-effects, increase the dosage by 25%-50%" (AHCPR, 1994).
3. "The use of opioid medication for pain relief rarely causes addiction. Concerns about addiction should not hinder administering increased dosages" (AHCPR, 1992 & 1994).

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires healthcare facilities to comply with the following pain management standards that have also been endorsed by the American Pain Society (APS):

1. "Recognize the rights of patients to appropriate assessment and management of pain."
2. "Assess the existence and, if so, the nature and intensity of pain in all patients."
3. "Record the results of the assessment in a way that facilitates regular reassessment and follow up."
4. "Determine and assure staff competency in pain assessment and management in the orientation of all new staff."
5. "Establish policies and procedures which support the appropriate prescription or ordering of effective pain medications."

6. “Educate patients and their families about effective pain management.”
7. “Address patient needs for symptom management in the discharge planning process” (JCAHO, 1999).

These standards, made effective in January 2001, are now a portion of the criteria used for accreditation of healthcare facilities. They standardize quality nursing care by requiring practitioners to address the issue of pain with each and every patient.

The American Pain Society’s president posted a message on the APS website in July/August 2000 in response to the new JCAHO standards for pain management. Chapman (2000) stated, “Complying with the new Joint Commission standards is not a matter of accommodating bureaucratic imposition; it is a chance to make the world a better place and to prevent future human suffering.”

Representatives from the World Health Organization (WHO) and the International Association for the Study of Pain (IASP) met in Geneva in October of 2001 to discuss options for improved collaboration among themselves and other Non-Government Organizations (NGOs) for the purpose of relieving unnecessary suffering from pain (Breivik, 2002). The key persons at this meeting proposed an action plan describing the magnitude of unrelieved pain around the world. The following recommendations were made:

- “Launch a global awareness campaign against pain.”
- “Improve relief of acute and chronic pain and its consequences.”
- “Improve relief of pain and symptoms like nausea and dyspnea in palliative care” (Breivik, 2002, p. 99).

As of May 2, 2002, the IASP was considering a business plan for the project and awaiting official confirmation of endorsement by the WHO (Breivik, 2002).

Individualization of the pain treatment regimen begins with determining the intervention most likely to provide analgesia, or pain relief. If a pharmacologic intervention is decided upon, the second decision requires choosing the route of administration. The intravenous route is the best method when rapid results are desired or when the patient cannot take oral medication (McCaffery & Portenoy, 1999). The next decision, dosage, is often titrated by the nurse with parameters set by the physician. Opioid pain medication, such as morphine sulfate, is to be administered in the following way:

“Opioids must be titrated to optimize the balance between analgesia and side effects...For IV opioids, titration may occur as often as every five minutes... Generally, the goal is to use the smallest dose that relieves the maximum amount of pain with the fewest side effects. Thus dose titration may maximize the amount of pain relief obtained from a given drug while ensuring that the dose is no higher than necessary.” (McCaffery, et al., 1999, p. 121-122).

With drugs like morphine, the nurse should focus on the patient’s response to the medication and its efficacy, rather than on a standard number of milligrams for a certain pain level. No set amount of analgesic is optimum or maximum (McCaffery, et al., 1999). Since nurses have partial autonomy in the decisions surrounding dosages of pain medication, it is important for nurses to correctly assess and then individualize the treatment after observing the patient’s response. “Because both pain and analgesic duration of action may be unpredictable, nurses play a pivotal role in the appropriate use of PRN analgesics..PRN means as needed, requiring assessment to determine when it is needed” (McCaffery, et al., 1999, p. 122).

Murrow and Murrow (2002) investigated less official standards of quality nursing care in a study reported in *Marketing Health Services* entitled, What Makes a Good Nurse? The purpose of this study was to determine the most important dimensions of the 5-item SERVQUAL scale in the healthcare environment according to nurses. The five dimensions of this scale were tangibles, reliability, responsiveness, assurance, and empathy. Responses from a sample of 105 nurses in a large regional healthcare institution showed reliability as the highest ranking, followed by technical competence, and then empathy. Nurses saw tangibles such as physical surroundings, cleanliness, and appearance of employees, materials, and equipment as least important.

The results of this study are not generalizable because of the convenience sample. Nurses' perceptions of what constitutes quality care may differ from patients' perceptions.

Summary of Findings and Relevance to the Current Study

Nationally recognized organizations have acknowledged the importance of pain management and have developed guidelines and standards for quality health care. Others have embraced the issue of quality through research.

Patient rights, thorough assessments, nursing competency, and symptom management are all major concepts threaded through the current research study. Nursing curricula and faculty instruction must address these issues to ensure that students are sufficiently prepared to enter the workforce.

Frameworks For Analyzing Pain Assessment Education

Benner's Novice to Expert Model

Many students enter nursing school as novices, without any prior healthcare experience. As they engage in course work and clinical practice, skills develop, knowledge increases, and judgment becomes more accurate. Faculty, mentors, and preceptors work to enhance students' clinical decision-making skills, facilitate critical thinking, and assist in prioritizing patient information. Expertise in the field is not anticipated until the graduate has been in practice for several years, but it is expected that students will progressively advance throughout the educational process. Patricia Benner's 'From novice to expert' theory captures this notion of advancement. Benner's theory is based on the Dreyfus Model of Skill Acquisition wherein one evolves through five levels of proficiency: Level I- Novice; Level II- Advanced Beginner; Level III- Competent; Level IV- Proficient and Level V- Expert (Benner, 1982).

The Dreyfus Model defines novice clinicians as persons who have had no experience in situations for which they are expected to perform. Their utilization of the nursing process is limited and inflexible. Novices are dependent upon rules and instruction to guide their actions. Progressing onward, advanced beginners are those who demonstrate marginally acceptable performance. They continue to need assistance with prioritizing and learn best in a familiar environment with recurrent meaningful situations. In level three, competent practitioners see their actions in terms of deliberate, planned, long-range goals with clear priorities. Next, proficient nurses perceive situations holistically and operate with keen perception in their performance. Finally, experts are those who have an in-depth understanding with a background of rich experiences. They

possess an intuitive grasp of each situation and are capable of pinpointing the nature of a problem (Benner, 1982).

“The novice to expert prototype is therefore promoted as a complete model for charting the development of the clinical nurse career. It demonstrates the need for continuing education as a means of achieving excellence in practice, uses clearly described stages of development, and does not lose sight of the value of caring for patients (English, 1993, p. 388).

Benner’s Model Applied in Research

In examining the differences among 695 novice, intermediate, and expert pediatric nurses from regions of The Netherlands, findings revealed that expertise had an impact on both the subject’s confidence in decision-making and the choice of analgesic administration (Hamers, van den Hout, Halfens, Abu-Saad, & Heijltjes, 1997). The stratified random sample used in this study included novices (271 first year BSN students), intermediates (222 fourth year BSN students), and experts (202 pediatric nurses who had previously participated in a similar study). The researchers sought to determine whether experts in the field differed from intermediates and novices in the area of pain assessment and analgesic administration. Using an experimental design, subjects were presented with four cases vignettes, a video scenario, and a 0-100mm Visual Analog Scale (VAS) for pain intensity measurement. The participants were asked to read the series of vignettes, watch the videos, and respond by rating the pain intensity. They were also asked to document their confidence level for each particular case and record their likelihood of administering pain medication to the child portrayed in the vignette. In order to show reasonable validity and reliability, the videos and written cases were

pilot tested and revised by experts in the field. Results of the study showed no systematic differences between novices, intermediates, and experts in the area of pain assessment. The pain assessment ratings on the 0-100 VAS ranged from 55-63 for all three groups. However, expertise did have a significant effect on confidence in decision-making and the administration of pain medications. Experts were more confident that their pain assessment decisions were correct ($p < 0.01$) and were also more inclined to administer analgesics ($p < 0.01$) when compared to the intermediate and novice groups (Hamers, et al., 1997).

It was disappointing that this research report focused only on the differences among the groups instead of also considering the accuracy of their assessments based on each case scenario. This underlying issue was not included in the purpose of the study. Inclusion of these details in the design would have expanded the findings and enhanced the usefulness of the study.

A study published in 1986 by Corcoran explored expert and novice nurses' decision-making habits with hospice patients experiencing pain. Differentiating factors such as professional experience and scholarly activities facilitated the categorization of participants into two groups. Six experts and five novices produced data for the study. All were employed as hospice nurses in one mid-western metropolitan area. The tool presented three types of chronic pain, each differing in its level of complexity. Each nurse approached the cases by reading them aloud, making decisions about drug administration, and writing individualized plans for the hypothetical patients. The nurses were encouraged to think aloud so the researcher could record and then transcribe their rationales for additional data. Cohen's coefficient of agreement for nominal data was

used to determine reliability of the coding and scoring techniques. The mean level of agreement was 0.84. Two similarities and eight differences were found between the novice and expert nurses. Both groups recognized the pain related problems in all cases, and all but one considered multiple methods for treating pain. Differences surfaced in the following categories. Experts:

- consistently used broad approaches in planning while novices were more narrow.
- possessed more knowledge about drugs and other treatments.
- demonstrated more factual, procedural, and experimental knowledge than novices.
- synthesized therapy options with patient information more thoroughly than novices.
- sought information from research studies and published literature when knowledge was insufficient.
- included interdisciplinary efforts in their plans for pain control.
- prepared more thorough written care plans than novices.
- had less difficulty related to incomplete or erroneous plans of care (Corcoran, 1986).

Clinical faculty at the University of Hawaii at Manoa selected Patricia Benner's model as a methodology for teaching a course called Professional Nursing Practice.

"...Benner's research provides a paradigm that assists nurse educators and students to see clinical practice as a developmental process" (Carlson, Crawford, Contrades, 1989, p.

188). Benner's novice to expert concepts were applied in three formats: a classroom seminar, a formal paper, and in medical-surgical and maternal child clinical areas.

Students were asked to perform a self-assessment at three points during the clinical rotation, identifying themselves as either novices or advanced beginners. The researchers

commented, “Students increasingly utilized Benner’s model as a way of looking at their own and other nurses’ practice” (Carlson, et al., p. 189). At the end of the semester, students assessed their level of proficiency and although everyone experienced growth, none of the students classified themselves as advanced beginners according to Benner’s definition. Although students did not perceive advancement based on the model, the experience was still beneficial for all. The researchers concluded, “Competency checklists, nursing care plans, and observation of students in the clinical area can never reveal to the nurse educator the rich context of the students’ experience that designing a course around Benner’s model would accomplish” (Carlson, et al., p. 190).

The researchers are to be commended for using this model as a construct for the nursing course; however, the results may have shown advancement to a higher level of expertise had the faculty been the ones conducting the evaluation, rather than the students evaluating themselves.

Contrary to other findings related to Benner’s model, a study of 106 staff nurses and 101 baccalaureate students attending a pain education program revealed no differences in assessment and drug therapy knowledge based on the length of time in practice or educational preparation (Watt-Watson, 1987). The practicing nurses had been employed for an average of twelve years. Most participants (96% of staff nurses; 91% of students) acknowledged the significance of assessing pain; yet, only seven of the total 207 respondents used pain assessment tools with their patients.

One must consider that this study was conducted in 1987, prior to a flood of information about pain assessment that infiltrated nursing journals over the next ten to fifteen years. Although the sample size was substantial, participants were all attending an

educational seminar in search of more information about the topic. Because of this, results cannot be generalized to a larger population.

Greipp's Model of Ethical Decision Making

Mary Elizabeth Greipp developed Greipp's Model of Ethical Decision Making for the purpose of synthesizing the global conception of interaction between nurses and clients within an ethical framework. The author credits Leininger's Theory of Transcultural Nursing and the General Systems Theory as stepping stones for the design of this model, which was first published in 1992. Greipp identified fifteen studies conducted between 1973 and 1990 that documented the undertreatment of pain using opioids, due to one or more causative factors. These inhibiting factors included knowledge deficit, faulty judgment or assessment, fear of addiction, and cultural differences and attitudes (Greipp, 1992).

A copy of Greipp's model can be found in Appendix A. The model was retrieved from the September 1992 issue of *Advances in Nursing Science*. Permission to use this model was granted by Lippincott, Williams, and Wilkins. See Appendix E for the letter granting the researcher permission to use the model within this document.

Greipp's model illustrates associations between the concepts of pain and ethical decision-making. The left side of the model represents the nurse whereas the right side of the model depicts the client. Both the nurse and the client possess learned potential inhibitors defined as psychosociocultural variables potentially enhancing or inhibiting interactions with others (Greipp, 1992). Potential inhibitors such as personal and professional experiences, culture, and belief systems can all be intercepted and modified by education. The framework illustrates professional ethical decisions as important

aspects of the nursing profession. The core of the model encompasses knowledge of the physiology of pain and pharmacologic measures used for pain relief. “By its location within the center of the framework, basic knowledge is shown to be a requisite component of professional practice and all ethical decisions” (Greipp, 1992, p. 51). Surrounding the center core of knowledge is another circle depicting responsibility and accountability for professional competence mandated by the American Nurses’ Association. Next, ethical principles of autonomy, beneficence, nonmaleficence, and justice are presented. Autonomy encourages self-determination by the patient; beneficence supports doing good for the client; non-maleficence means doing no intentional harm; justice renders fair treatment and respect (Greipp, 1992). The ethical framework as a whole is placed on a deontological base that stands for respect and obligation to other human beings, as well as a belief that individuals are ends in and of themselves. The nurse utilizes the nursing process for decision-making that includes assessment, diagnosis, planning, implementation, and evaluation. While making treatment decisions, the nurse must recognize all expressions of pain including those that are physiologic, verbal, and nonverbal. (Greipp, 1992).

Greipp’s Model Applied in Research

The use of Griep’s Model of Ethical Decision Making “is considered to be universal and applicable in any setting....to identify breakdowns or areas of difficulty in making decisions of either a major or minor nature” (Greipp, 1992, p. 735).

Erkes, Parker, Carr, and Mayo (2001) applied Greipp’s Model of Ethical Decision Making as the theoretical framework of their research study. This quasi-experimental study tested critical care nurses’ knowledge and attitudes about pain management in a

pre-post test design using a 37-item questionnaire. The *Nurses Knowledge and Attitude Survey Regarding Pain* developed by Ferrell and McCaffery was shown to be valid and reliable. Thirty nurses, all employed in a large metropolitan hospital in southeastern United States, participated in the study. Data were collected within two weeks before and after an educational program consisting of a self-learning module and a 1-hour videotape. A paired t-test showed significant increases in nurses' knowledge and attitude scores after the educational program, when compared to baseline values ($t = 9.60, p = 0.0005$). Pretest scores ranged from 51 percent to 92 percent with a mean of 72.9 percent whereas posttest scores ranged from 73 percent to 97 percent with an average of 86.2 percent. The nurses whose scores increased the most were those with numerous years of experience. The author explained that this relationship could have been due to the length of time they had been out of school. "Many of the nurses practicing today have not been in school for some time and would benefit greatly from educational programs regarding the best management of their patient's pain (Erkes, et al., 2001, p. 52).

Summary of Findings and Relevance to the Current Study

Benner's novice to expert theory and Greipp's model of ethical decision making have been used to guide nursing research studies and facilitate nurses to recognize the importance of life-long learning and continued growth in the field.

Nurses must first be knowledgeable about pain management and then be cognizant of the ethical responsibilities of the nursing profession. Learned potential inhibitors, possessed by the patient or the nurse, can lead to a breakdown in effective pain control. Pain management decisions, responsibility, ethics, and communication are all major concepts included in the current research study. The awareness of all of these

processes working in unison will assist the clinician in making appropriate decisions for the good of mankind.

Ethical Considerations

The complexity of pain control and its ethical implications stem from the values, beliefs, and attitudes people possess. Often, past experiences or mistaken truths influence nurses' assessments and treatment decisions (Spross, 1990). Nurses spend more time with patients than anyone else on the healthcare team; therefore, they are the most liable when pain mismanagement issues emerge. Litigation is always a threat for clinicians who have allowed patients to suffer from pain when it could have been controlled. Lack of knowledge and misconceptions about patients in pain are not legitimate excuses for faulty practice. The enactment of JCAHO treatment standards and the publication of pain management guidelines and protocols by other organizations may lead to an increase in the number of patients and families who take punitive actions against negligent practitioners (Pasero & McCaffery, 2001).

More healthcare facilities are now providing information to patients about their right to treatment interventions. The Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) has provided a toll-free complaint hotline for patients and their families to report concerns about pain mismanagement. At least one of the following actions are taken when a complaint is filed with JCAHO:

- "It incorporates the complaint into a monitoring database."
- "It asks the organization to provide a written response."
- "It reviews the complaint during its next survey of the facility."
- "It conducts an unannounced on-site evaluation" (Pasero, et al., 2001, p. 631).

- It is an ethical obligation for nurses to explore traditional and alternative ways to relieve pain, within their scope of practice (Pasero, et al., 2001).

The ethical principles of autonomy, advocacy, beneficence, and nonmaleficence are important considerations when caring for a patient in pain. Henkelman (1994) defined autonomy as, “the right of individuals to make decisions which determine the course of their lives” (p. 48A). A patient-centered approach that includes believing the patient and responding accordingly gives patients a sense of control for their own well-being. Research shows that distress, fear, and thus pain intensity decreases when patients are given autonomy in their treatment (Hough, 1986).

Walding (1991) showed linkages among pain, anxiety, and powerlessness through a review of the literature. Opposite of the ethically important sense of autonomy is powerlessness, or the feeling that events are out of one’s control. Encouraging patients to be active participants in their own care will instill a sense of autonomy and prevent the development of powerlessness (Walding, 1991).

Advocacy involves protecting the rights of people who are unable to do so for themselves. If open communication and mutual respect are not present between the healthcare team and patient’s family, advocacy often requires assertiveness and risk-taking actions to ensure that the patient’s wishes are carried out (Henkelman, 1994).

Beneficence is the principle of doing what is good and beneficial for the patient. Pain control, which is preceded by accurate assessment, perception, and treatment, does more than simply provide comfort. “Beneficial physiological effects of pain relief include muscle relaxation, more effective respiratory function, reduction of cardiovascular stress and reduction of endocrine responses...” (Henkelman, 1994, p.

48b). Psychological benefits include decreased anxiety, reduced incidence of depression, and enhancement of coping abilities.

Nonmaleficence, the duty to do no harm, can be upheld through accurate assessment and treatment of pain. Withholding treatment, which ultimately results in harmful sequelae, should be avoided (Henkelman, 1994). Allowing patients to suffer from pain and withholding treatment constitute ethical misconduct. It is crucial for nurses to uphold the standards and moral responsibilities for which they have been entrusted.

“To have pain is to have certainty; to hear about pain is to have doubt” (Scarry, 1985, p. 13). Accepting others’ subjective reports of pain involves a certain level of trust. There must also be a degree of trust on the part of the patient when he places his care into the hands of the healthcare provider. Peter and Watt-Watson (2002) suggest that clinicians are likely to trust objective or measurable data such as temperature or blood pressure more than self-reports of pain. Why is it so difficult to trust what others say and provide the appropriate pain relieving medications? When people allow themselves to trust others, vulnerability is a reciprocal effect. To reduce this sense of vulnerability, practitioners often question the validity of their patients’ reports and oftentimes show disbelief in order to protect a perceived sense of power (Peter & Watson, 2002). Another answer to this question may relate to negative side effects from analgesics or exaggerated fears of addiction. “These misconceptions and fears help clinicians rationalize their lack of involvement with patients’ pain and serve to protect them from the accompanying vulnerability of entrustment” (Peter, et al., 2002, p. 74.) Healthcare personnel and educators need to be aware of the ethical consequences of such faulty thinking. It is the

moral responsibility of the practitioner to develop a trusting relationship with patients in pain, so that individuals are not pre-judged depending on their race, sex, or other variables. If the nurse questions the sincerity of the patient and doubts the truthfulness of the patient's report of pain, s/he should nonetheless accept and respect this subjective report and take action based on this information. "To distrust the subjective when relieving pain is, often, to disparage the most significant clinical evidence available" (Peter, et al., 2002, p. 75).

Members of the American Pain Society and the American Academy of Pain Medicine participated in a study to investigate their own personal experiences with ethical dilemmas in pain management. Although the response rate was only 24%, 1,105 surveys from physicians, nurses, psychologists, and others were returned for qualitative and quantitative analysis. There was consensus across professions that end of life pain management, general undertreatment of pain, and lack of pain control in the elderly were top priorities. Qualitative data were derived from an open-ended question asking participants to describe a recent clinical situation or experience involving ethical pain management issues. The most prevalent theme was inappropriate pain management; 156 comments fell under this heading. Ninety-four (94) respondents referred to barriers to care, which was the second most common area of comment. Other themes included interactions and conflicts, regulatory/legal issues, euthanasia/physician-assisted suicide, and research issues (Ferrell, Novy, Sullivan, Banja, Dubois, Gitlin, Hamaty, Lebovits, Lipman, Lippe, & Livovich, 2001).

Low response rates may have influenced the results of the study discussed above. Also, the survey included 14 ethical dilemmas for which respondents were asked to rate

importance. Although these dilemmas were formulated by committee members after a review of the literature and validated by the task force members, results may not be comparable to a study using an instrument shown to be valid and reliable after repeated use. The authors did, however, identify these limitations in the discussion section of the article.

Summary of Findings and Relevance to the Current Study

Although pain is a negative experience in and of itself, consequences can have a rippling effect that reaches farther than the patient. Knowledge, competency, and awareness of barriers in pain management are necessary for healthcare personnel to practice safely. It is unethical to use ignorance as an excuse for undue suffering. Ignoring and undertreating self-reports of pain not only compromise the patient's well-being, but also place the nurse at risk of losing his or her license.

The responsibility for appropriate assessment and treatment should be ingrained early in a nursing student's course of study. If ethical obligations are not presented to students in school, they will graduate with false assumptions, placing themselves and their patients at risk. Patient advocacy, moral responsibility, acceptance of others, and patient rights are major concepts in the current research study.

Research in Pain Assessment

Pain and its complications account for some of the most common problems nurses encounter in practice. The assessment and treatment of pain is a major responsibility of healthcare practitioners (Jeans, 1985). Problems are often due to the subjective nature of pain that brings into question the accuracy of assessment techniques and the adequacy of treatment options (Latham, 1994). Nursing assessment is a continuous process where

nurses gather data and cluster significant cues in order to determine a nursing diagnosis, state goals and outcomes, plan care, implement, and evaluate progress toward goal attainment. The nursing process fosters continuity of care among healthcare professionals by keeping lines of communication open. Through assessment and proper documentation, clinicians can better follow the patient's progress and know when changes and adjustments need to be made to maintain optimal quality of life (Camp, 1988).

McCaffery and Ferrell's Research

Margo McCaffery and Betty Ferrell's research findings were published in 1991 after a series of workshops in six cities of the United States. The three major areas to be examined in this study were nurses' assessments, the dosage of medication, and concerns related to opioid administration. Four hundred fifty six (456) nurses completed a clinical vignette survey with two similar patient scenarios, differing only in their behavior. 'Andy' showed no visual signs of pain as he smiled, talked, and joked with a visitor while 'Bob' grimaced as he turned in the bed. A 0-5 numerical rating scale was used and both patients rated their pain intensity as a 4. In response to the patient with atypical behavioral manifestations, only 40.7 percent of the nurses said they would document the pain level as 4 while 71.6 percent would record a 4 for the patient with the typical behavior of grimacing. The physicians' orders in the vignettes for both patients allowed 5-15 mg of morphine to be administered intramuscularly every 3 to 4 hours as needed. The vignette denoted vital signs within normal limits and documentation of 10mg morphine given earlier without pain relief. Only 32.8 percent of the participants increased the dose to 15mg for the smiling patient while 54 percent increased the dose for

the grimacing patient. When the results of the survey were discussed at the workshop, some nurses said they chose not to increase the dosage of morphine because neither patient in the vignette explicitly asked for more medication. Others said they would have asked the patient before making the decision to increase the dose. The final question in the survey asked the nurses to indicate any risks that may have influenced their medication decisions. The choices given were respiratory depression, tolerance to analgesia, addiction, withdrawal, other, and no major concerns. Close to half of the nurses felt that none of the concerns listed were significant in the vignettes, which was correct in the scenarios presented. Very few of the nurses listed respiratory depression, addiction, and withdrawal as reasons for not increasing the medication dosage. “If Andy and Bob had been real patients of the nurses in this survey, they would have received inconsistent pain management” (McCaffery, et al., 1991, p. 37).

These results showed that most of the nurses surveyed based their assessment and treatment decisions on behavioral manifestations due to personal biases. Demographic data for the nurse respondents were not included in the journal article, so there was no way to categorize results based on personal traits.

Although some progress has been made through continuing education classes and workshops, research continues to show deficits in knowledge. Margo McCaffery collected data from workshops between 1988 and 1995 using the ‘Andrew/Robert Survey’ and the ‘Addiction Survey.’ Although results showed progressive improvement, cause for concern remains. The percentage of nurses who correctly identified the chance for addiction as less than 1 percent rose from 43 percent in 1988-89 to 62.7 percent in 1995. Nurses who held an exaggerated fear of addiction dropped from 23 percent to 13.3

percent in the same time span. Nurses who correctly rated the self-reports of pain for both smiling and grimacing patients in response to clinical vignettes rose from less than 40.7 percent in 1990 to 72 percent in 1995. Concerns lie with the 28 percent of nurses who continued to under-rate the self-reports of pain and almost half who failed to increase an ineffective dose of morphine in both patient scenarios. From these studies emerged recommendations for nursing education including cultural considerations in pain and, most importantly, emphasizing the patient's self-report as the most accurate measurement of pain intensity using a pain rating scale (McCaffery & Ferrell, 1997).

Other Research

Much of the literature depicting discrepancies between nurses' assessments and patients' reports of pain focuses on adult subjects in North America. However, a study published in 1996 examined the relationship between children's reports of pain and nurses' ratings in a Danish healthcare facility. One hundred children (44 boys and 56 girls) aged 3-15 participated along with two nurses who had worked with pediatrics for the past three years. The two instruments used in this study were the poker chip tool (PCT) and a 10-cm visual analogue scale (VAS), both shown to be easily utilized, valid, and reliable (Romsing, Moller-Sonnergaard, Hertel, & Rasmussen, 1996). Children were shown how to use the PCT one day prior to the scheduled tonsillectomy. Post-operatively, participants were asked to rate their pain intensity in the morning just before analgesic administration, and then two hours later. While the children rated their pain on the PCT, nurses were asked to estimate their pain using the VAS after a brief observation. Results showed that children's average pain ratings were 17 percent lower after taking analgesics, while nurses' ratings were 53 to 58 percent lower than pre-intervention

ratings. Correlations were statistically significant ($r = 0.35-0.43$, $p < 0.001$). Nurses overestimated the effectiveness of pain medications, especially when children were “playing in their beds or running around in the playroom” (Romsing, et al., 1996, p. 46).

Choiniere, Melzack, Girard, Rondeau, and Paquin (1990) studied the comparison between patients’ and nurses’ assessments of pain and perception of medication effects in severe burn injury cases. Forty-two patients and forty-two nurses in Montreal participated in the study. The instruments used included a visual analog scale (VAS) and a verbal scale (VS). Procedures on burn patients such as wound cleansing and dressing changes are notorious for being painful. Immediately after patients underwent one of these treatments, they were asked to rate their pain intensity on both scales. This was the first phase of data collection. Using the same scale, nurses were asked to rate the intensity they believed the patient had endured during the procedure. The patient and the nurse were also asked to estimate the degree of pain relief on a VAS and VS when pain medication was administered prior to the therapeutic treatment. The second phase of data collection occurred later in the day when the patient was resting, using the same design. This was repeated every week from admission to discharge, yielding 82 paired ratings. The results showed small correlations between what the nurse reported and what the patient reported. Correlations were higher during the procedure ($r = 0.47$ VAS and 0.41 VS) than at rest ($r = 0.33$ and 0.31); however, the nurses correctly inferred pain intensity in only 30 percent of the cases during the painful procedure. Further analysis showed that nurses underestimated the pain 43 percent of the time and overestimated 27 percent of the time during the procedure and also frequently underestimated (18%) and overestimated (33%) while the patient was resting. The results also showed nurses

overestimating the effectiveness of analgesia. At the time of treatment, 45 percent of the patients reported little or no pain relief from medications, while nurses only documented little or no pain relief in 14 percent of the cases. Nurses correctly estimated pain relief only 16 percent of the time (Choiniere, et al., 1990). When considering the nurses' demographic variables, researchers found nurses with less experience overestimated pain intensity significantly more often than those with more experience. On the contrary, nurses with more experience tended to underestimate the patient's pain intensity.

The instruments in the above mentioned research study were well known and psychometrically sound. Researchers used the same tools with both the patient and the nurse. Demographics and personal traits were considered, which produced rich data. It is commendable that researchers set small parameters for the VAS; a difference of greater than 1 cm was considered an overestimation or underestimation of the pain intensity.

Camp (1988) set out to answer two research questions in her study: 1. 'What percentage of pain assessment is recorded by the registered nurse for each cancer patient's description of pain' and 2. 'How much agreement is there between the information recorded by the registered nurse and the patients' description of pain' (Camp, 1988, p. 237). The study took place on five oncology floors in a metropolitan area in southeastern United States. A convenience sample of thirty cancer patients (16 female and 14 male) and their registered nurse participated in the study. Patients were all alert, experiencing pain, and at least two days postoperative. The interview protocol was developed using the McGill Pain Questionnaire (MPQ); content validity was established. After the nurse identified a patient fitting the criteria of the study, the researcher gathered data from that patient including information about pain location, quality, pattern,

intensity, verbal and nonverbal expression, symptoms, aggravating factors, and pain relief measures (Camp, 1998). Nurses were not told that their documentation would be audited for completeness and quality. They had all attended a mandatory class on charting which included pain assessment. Results showed that less than 50 percent of the patient's pain assessment information was documented. Instances in which the patients' perceptions and the nurses' recordings matched were between 0 and 42 percent, with an average of 14 percent. Location of pain was recorded by 63 percent of the nurses; however, only 43 percent of those nurses' descriptions matched the location the patient described to the investigator (Camp, 1988). From the 30 nurse-patient dyads, researchers elicited specific pain symptoms from 9 patients; however, none of the nurse participants recorded these symptoms in their charts. On a positive note, 28 of the 30 registered nurses documented the medication given to alleviate pain. The author discussed several explanations for the findings, one of which had to do with the nurse to patient ratio. Each nurse was responsible for 4 to 7 cancer patients during the shift. Lack of time and heavy workload could have contributed to the incomplete assessments and documentation.

The results of this study were published in 1988. At that time, JCAHO standards and American Pain Society guidelines were not focused on pain assessment and documentation as strongly as they are today. Pain intensity scales were not used by nurse participants in this study and patients' verbal reports of pain intensity were not documented. In fact, none of the nurses in the sample documented patient's verbal reports of symptoms or pain intensity in the medical charts. The author states, "The majority of documentation was similar to the following example: 'Complained of pain, gave morphine 5 mg I.V.'" (Camp, 1988, p. 241). This finding is disappointing because

all of the nurses in the participating healthcare facility had attended a mandatory class in which policies and procedures were explained, including documentation. The documentation standards set by the hospital were identical to the researcher's information gathered from chart audits.

In a study to evaluate pain assessment and barriers to pain management, Drayer, Henderson, and Reidenberg (1999) interviewed 50 acutely ill hospitalized patients experiencing pain as well as the nurses and physicians caring for them. The 0-10 numeric rating scale (NRS) was used to elicit information from the subjects. Nurses and physicians were also asked to predict the patients' intensity ratings and make judgments about the necessity for more pain medication. A five-point pain behavior scale was developed by the researcher with the following categories: 0 - Laughing or smiling; 1 - Not smiling; 2 - Withdrawn or unwilling to talk; 3 - Facial Expression shows pain; 4 - Writhing or screaming. Patients were placed into categories depending on the etiology of their pain. Sixteen had cancer, nine had sickle cell disease, eighteen had various skin lesions, and seven had pain without any identifiable lesion. It was found that pain behavior only moderately correlated with the pain intensity reported by the patient ($r = 0.357$; $p < 0.02$). Surprisingly, there was no statistically significant correlation between the physician's and nurse's reports of pain ($r = 0.21$; $p > 0.1$). In 36 percent of the paired recordings, ratings differed by 3 or more on the NRS (Drayer, et al., 1999). Twenty-one patients wanted more pain medication, but findings showed that doctors were often unwilling to prescribe more, and nurses often thought they did not need more. Patients who claimed no desire for more pain medication were asked to explain their reasons. Examples of their rationales were: 'Taking drugs is habit forming,' 'Feeling cloudy,' and

‘Trying to balance side effects with pain relief’ (Drayer, et al., 1999, p. 437). Nurses’ reasons for thinking patients should not receive more analgesics included these examples: ‘What he is getting now is enough or maybe even too much;’ ‘Seems pretty well controlled;’ and ‘I’m having a hard time relating to pain’ (Drayer, et al., 1999, p. 437). Examples of doctors’ rationales were: ‘We’re not concerned about the pain itself. We’re concerned about what’s causing it;’ ‘I think pain is well controlled;’ ‘I don’t know what the dependency issues are. There’s something psychological going on here’ (Drayer, et al., 1999, p. 437). The most common reason why more pain medication was not requested or prescribed was related to exaggerated fears of addiction.

The researchers should be commended for eliciting rationales for the patients’ choices instead of simply tabulating the statistics. Inclusion of this information added depth to the findings of the study. There was no mention of testing for validity or reliability of the pain behavior scale developed by the researchers. There was no mention of a pilot test; however, inter-rater agreement was determined among medical students conducting the interviews.

Contrary to the results of previous studies about pain assessment, Field (1996) found that nurses relied more upon patients’ self-reports of pain during assessment than on behavior or non-verbal cues. The results could have been due to the design of the study. The convenience sample included 28 nurses from five different surgical floors in a British hospital, along with an additional sample of 28 nursing students. The survey consisted of 10 short closed-answer questions, designed by the author, to collect information related to demographics, assessments, analgesia decisions, evaluation of pain relief, and pain assessment tools. Although nurses indicated that they relied on patients’

self-reports of pain more often than non-verbal cues during assessment, their decisions to administer pain medication were not based on patient ratings. Rather, the decision to medicate was influenced by the dosage, classification, and frequency of drug given. Reasons given by the nurses for withholding drug therapy supported the researcher's hypothesis of "reacting adversely to the drug" (Field, 1996, p. 841). When nurses were asked about methods for evaluating analgesia, there was no significant difference between the use of patient self-reports and behavioral cues. Seventy-seven percent of the nurses and 89 percent of the students were aware of pain assessment charts (PAC), but only 36 percent had used such tools for pain assessment or management.

The validity of this study is questionable. The sample size was small and limited to one hospital setting. One might question whether nurses' responses to a closed-answer questionnaire truly represent decisions they would make if given a hypothetical vignette or in a real clinical situation. Results are not consistent with other findings from similar studies.

An investigation of the analgesic decision-making skills of nurses was conducted by Sheidler, McGuire, Grossman, and Gilbert (1992) with a sample of 177 registered nurses attending a two-day continuing education program. The nurses were from fifteen different states and the District of Columbia. Average number of years employed as a nurse was 10 years with a range of 0.5 years to 40 years. A three-part instrument was designed by the researchers for this study. It included a demographic questionnaire, four vignettes, and a question asking nurses to rank the top three resources they would use if unsure about an analgesic order. Content validity was established by a panel of experts and two pilot studies led to minor modifications for clarity. On the first day of the

education session, nurses responded to the instrument. They were given a nursing drug guide and a current Physician's Desk Reference (PDR) to use as resources. The vignettes required nurses to read the scenario and check one of the four potential actions they would take. The choices included: administering the drug as ordered, questioning the new order because it is an insufficient amount, questioning the new order because the amount is too much, or unsure about what to do. Results revealed only 26 percent correct answers; moreover, almost none (2%) of the subjects answered all four questions correctly. Twenty-nine percent of the nurses answered all four vignettes incorrectly. No statistically significant correlations were found between correct answers and demographic data. Nurse participants said the resources they used most often were pharmacists, physicians, and the PDR.

Jacox (1979) explained pain management problems in terms of communication barriers. "The ability of one person to interpret accurately what is felt by another is complicated when the attitudes of the assessor and the person being assessed differ" (Jacox, 1979, p. 895). She gathered data from 102 patients experiencing three types of pain: short-term ($n=27$), long-term but not terminal ($n=20$), and long-term terminal becoming progressively more severe ($n=30$). For the purpose of determining how these patients dealt with pain, they were asked, 'Do you like to discuss your pain with others?' At least 70% in each category either answered 'no' or 'uncertain.' When asked, 'Why don't you like to talk about your pain?,' a typical response from patients in the short-term and long-term non-terminal group was, 'I figure other people have problems, probably more than I do' (Jacox, 1979, p. 896).

Patients in the progressive severity group responded to this question differently, suggesting a social stigma associated with people who report pain. When patients were asked how they usually responded to pain, nearly two-thirds of the total number of participants said they tried to ignore it, attempted to remain calm, or tried to mask the symptoms. Examples of responses were, 'I'm usually pretty tough. I don't like to have anyone see me cry' and 'All you can do is just lie there and suffer it out' (Jacox, 1979, p. 897).

This same study also found communication to be a problem because of the verbiage used to describe unpleasant stimuli. Patients identified 'slamming finger in a door' as an example of a pain but 'itching, dull headache, nausea, muscle aches, sore throat, and shortness of breath' as discomfort rather than actual pain. The researcher discusses the importance of using such terms as discomfort, hurt, sore, ache, and pressure to elicit a true picture of what the patient is experiencing.

A series of three studies were conducted in a medical oncology hospital in 1994 to determine if the consistent use of a verbal pain scale would improve the accuracy of reported pain intensity ratings between patients and their caregivers. Patients were all over eighteen years of age, alert and oriented, with a history of a malignant solid tumor. Convenience sampling was used in the series of three studies; each sample consisted of 40-50 patients willing to participate. Patients who agreed to participate were asked to rate their average pain intensity level over the past 24 hours on a 0-10 scale. On the same day, the patient's nurse and physician were asked to rate the patients' pain. In the baseline study, only 64 percent of the clinicians' pain scores were within 2 points of the respective patients' scores; caregivers tended to report lower ratings than the patients.

(Scores two points or less from the patient's score were considered a success; scores differing more than two points from the patient's were viewed as failures).

In response to the results of the first study, nurses and physicians were asked by managers and directors to elicit patient's numerical pain ratings daily and record that score on the medical record. The second study was performed with the same design as the first study. Results showed little improvement (68% of caregivers' scores were within two points of the patients), with a chart review revealing only 20 percent of nurses and 40 percent of medical residents documenting the numerical pain score on the days that patients were surveyed. The care providers continued to underrate the patients' verbal reports of pain.

Next, an educational effort was mandated where nurses and doctors were 'forcefully implored' to use the pain assessment tool every day and document that score on the patient's chart. During this educational initiative, attendees were told that documentation of pain intensity was just as crucial as recording vital signs. Following the educational initiative, a third study showed that 98 percent of nurses and 60 percent of physicians included the requested documentation. More importantly, 85 percent of the healthcare providers' pain scores were within two points of the patient's scores and caregivers' scores were not consistently lower than the patients' verbal reports. When compared to the baseline study results, there was significant improvement ($p=0.001$). An unanticipated finding revealed that improved understanding of pain intensity resulted in better pain control. Fewer patients in the third study reported numerical pain scores at or above 6 (7%) as opposed to the first (16%) or the second (22%) study (Au, Loprinzi, Dhodapkar, Nelson, Novotny, Hammack, and O'Fallon, 1994).

Similar to the study summarized above, Tait and Chibnall (2002) conducted a study in a St. Louis, Missouri hospital to examine patient pain levels and nurses ratings of pain using a correlational design with a retrospective review of medical records. From 290 admissions during a 21-week period, 90 patients met the criteria for the study and agreed to participate (73.3% female and 62.2% African American). Patients used a 0-100 numeric rating scale with low and high word descriptors for reporting their pain intensity. Nurses' ratings of patients' pain intensity were documented daily on an 11-point scale (0-10). Patients' cognitive impairments were assessed with the Mini-Mental State Examination. The literature describes these instruments as having well established validity and reliability. For seven sequential days, a research assistant visited the hospital rooms of the patients at three specified times (morning, midday, and evening) and asked patients to rate their pain. Nurses were unaware of the patients' ratings elicited by the researcher, and researchers were not aware of the nurses' ratings at the time of data collection. Prior to data analysis, in order to compare the numerical ratings, nurse ratings were converted from a 0-10 scale to a 0-100 scale by multiplying the nurse intensity ratings by ten (Tait, et al., 2002). Results showed that nurse ratings of pain intensity were uncorrelated with patient ratings and underestimated, both for patients who were cognitively impaired and for those who were not. Nurse ratings correlated with behavioral signs of discomfort and with administration of pain medication ($r = 0.82$). "While behavioral signs of discomfort command attention for obvious reasons, the pattern suggests relative inattention to more subtle but clinically important information in subacute care (i.e., self-reported pain)" (Tait, et al., 2002, p. 236).

A noteworthy problem in this study was the use of two different numerical rating scales. The researcher used a 0-100 scale with the patients, while the nurses used a 0-10 scale. The rationale for this choice is questionable. It is possible that researchers were unaware that nurses used a 0-10 scale prior data collection. The researcher attempted to compare the two ratings by multiplication transformation, but this strategy clouds the validity of the findings.

Results of a comparison study, by Carpenter and Brockopp (1995), between two rating scales used simultaneously suggest “the 0-5 numeric rating scale and the 10-cm visual analog scale should not be used interchangeably in the same setting” (p. 297). Patients did not rate their pain in a mathematically equivalent manner between the two scales, and nurses did not administer the same amount of pain medication for equivalent ratings (Carpenter, et al., 1995).

Summary of Findings and Relevance to the Current Study

Research in the area of pain assessment has shown improper means of assessment as well as underutilization of pain rating scales. Nurses continue to underestimate and overestimate pain based on behavioral and physiologic manifestations. Incomplete documentation is another factor that has led to a breakdown in continuity of care.

In order to properly treat a patient’s pain, the nurse must first gather accurate data through assessment, use appropriate resources, and carefully plan individualized care. These steps of the nursing process are key concepts filtered through the current research study.

Research in Pain Management

Research findings show that nurses continue to have inadequate knowledge regarding pain management, despite the dissemination of information through journals and development of standards that have been in effect since January 2001 from the Joint Commission on Accreditation of Healthcare Organizations (McCaffery & Robinson, 2002). In a recent study conducted in January 2002, more than 3,000 readers of Nursing2002 responded to a survey designed to reveal nursing knowledge about assessing and treating pain. Approximately 400 of the participants were students, while the remainder included licensed nurses. One of the purposes of this survey was to provide educators with information to assist with setting priorities for education. Results indicated that fewer than half of the respondents had a score of 80 percent or above. Although participants scored very well with questions pertaining to assessment, "...the need to accept and act on a patient's report of pain must be continually emphasized" (McCaffery, et al., 2002, p. 45). Fewer than fifty percent recorded a confidence level of 4 or 5 (very confident), that they answered most questions correctly. "Thus, education is important not only for nurses who don't realize their limited knowledge of pain management but also for those who do have knowledge, but lack confidence and need to have their knowledge reinforced" (McCaffery, et al., 2002, p. 45). Many nurses wrote additional comments that revealed the following recurring themes:

- 'recognition of the need for more education'
- 'concerns about nursing colleagues' attitude and practice'
- 'desire for multidisciplinary education about pain and its management'
- 'personal experiences with acute and chronic pain'

- ‘cultural, ethnic, and socioeconomic factors that influence pain behaviors and management’ (McCaffery, et al., 2002, p. 39)

McCaffery, et al. (2002) write, “These findings strongly suggest the need to provide more education about pain management in basic and continuing education for nurses. Facilities involved in improving pain management need to be aware that many of their staff may be poorly educated about pain” (p. 44).

Australian nurses were surveyed by Heath (1998) to see if they may have knowledge deficits and learned attitudinal barriers just as studies have suggested of North American and Canadian nurses. A 39-item closed-ended questionnaire designed by Betty Ferrell and Margo McCaffery was used in four areas of an Australian hospital. Forty-two nurses who cared for patients with mild to severe pain completed this instrument, shown to be valid and reliable. Findings showed that more than 50% (n = 25) of the nurse participants undermedicated patients in pain. Forty-one percent (n = 17) of the nurses surveyed were aware that the incidence of addiction was less than one percent for patients taking opioids. When the patient rated his pain as a 4 on the 0-5 scale in the case vignette, but talked and joked with visitors, only 31 percent of the nurses were willing to administer the recommended dosage of medication.

There was only a 47 percent response rate to this survey and the sample size was small; however, nurses represented a cross section of specialty areas including surgical, medical, neurosurgical, and emergency units. Since this was a small study, one must use caution in generalizing the results. It is beneficial to have data about pain management from healthcare providers in other parts of the world.

The purpose of a 1991 study by Ferrell, Eberts, McCaffery, and Grant was to investigate nurses' clinical decision making when reflecting on actual experiences encountered with patients in pain. A panel of experts reviewed the 14-item survey for clarity and content validity. The descriptive design included five research questions pertaining to assessment, treatment, nonpharmacological interventions, barriers to pain relief, and ethical conflicts. Although 200 surveys were administered, only 53 nurses completed and returned them. This could have been due to the time it took to complete the instrument. Nurse respondents each gave information about one patient s/he had recently cared for. Of the patients described, 45 percent were male and 55 percent were female. Eighty-eight percent (88%) had pain from something other than a surgical procedure, with respiratory disease and diabetes as other causes. Participants reported 'asking the patient' as the most commonly used method of assessing pain intensity (91%); however, only 45 percent referred to it as the most influential factor in their assessment. These findings showed that over half of the nurses were more influenced by factors such as activity and behavior, than by the patient's self report of pain. Pain intensity scales were used by 59 percent of the surveyed participants, while the other 41 percent used observation of the patient's behavior to determine intensity. Ninety-six nurses said they documented their assessments, although only 7 (13%) used a flow chart to show progression toward pain relief. When asked about barriers to providing optimal pain relief, most reported patient or family knowledge (37%), followed by inadequate knowledge of the physician (30%), cooperation of the physician (23%), and insufficient prescriptions written by the physician (28%). Nineteen percent of the nurses saw their own knowledge deficit (19%), and minimal time spent with patients (19%), as barriers.

The most commonly cited ethical conflict in pain management was inadequate pain relief (76%), along with concerns about undermedication and patients' denying their pain.

Significant amounts of data were retrieved from this single study, but it would have been more generalizable if the response rate had been greater than 25 percent. The authors acknowledged that the sample represented a skewed population of nurses who were interested in the topic, attended a workshop, and chose to fill out and return the survey.

Hunt (1995) conducted a study of orthopedic nurses' attitudes about patients' pain in a London, England hospital. A short 13-item questionnaire served as the instrument for the study. The first nine questions were answered either true or false. Questions ten through 13 were open-ended, requiring narrative statements. There was no mention of the validity or reliability of this tool in the report. Questionnaires were distributed to 50 nurses in four adult orthopedic areas of one hospital. Thirty-five of those nurses completed and returned the survey, yielding a 70 percent response rate. Examples of true/false statements included in the survey were: 'Patients should expect to suffer some pain following surgery;' 'Pain can be detected by the patient's behavior;' and 'What the patient says about his or her pain is always true' (Hunt, 1995, p. 3). Eighteen of the respondents (51.4%) believed patients should expect to suffer with some pain after an operation. Twenty-one (60%) responded that pain could be detected by a patient's behavior. Most nurses (68.5%) disagreed with the statement that healthcare workers are more qualified than patients to assess pain intensity; however, almost half ($n = 17$) were either unsure or disagreed that the patient's stated pain intensity was always true. Fifty-one percent (51%) of the nurses disagreed that clinicians can determine a patient's pain

from the type of surgery he had. Over half (54.2%) were unsure or agreed with the statement that patients easily become addicted to pain medications. In narrative statements, nurses cited 'lack of education' as one of the reasons why patients do not always receive appropriate treatment. The researcher said the respondents were lacking in knowledge, "particularly in relation to their understanding of pharmacology and of the appropriate analgesic to give patients for the amount of pain they were suffering" (Hunt, 1995, p. 9.) "Bad communication between the doctor and the nurse" was to blame for patients not always receiving prompt pain relief (Hunt, 1995, p. 9).

This study cannot be generalized because the sample size was small and composed of nurses in a specific area of one hospital. However, it is beneficial to have data from a country other than the United States for the purpose of showing the far-reaching effects of this problem. This research would have been more substantive in its findings if the author had pilot tested the instrument or taken measures to show content validity.

Irene Scott (1992) conducted a British study at Stepping Hill Hospital in Stockport. After a review of the literature, Scott constructed a two-part questionnaire to assess nurses' attitudes about pain at the hospital where she was employed. The first portion of the questionnaire included 33 statements in which nurses responded on a Likert scale from strongly agree to strongly disagree. Sixteen of the 33 statements were taken from the work of another researcher. The second part of the instrument was designed by the researcher to assess the use of pain assessment scales. Both senior nursing students ($n = 23$) and staff nurses ($n = 29$) responded, resulting in a 65 percent total response rate. Findings suggested that only three of the participants opposed

McCaffery's definition of pain; i.e., 'pain is whatever the experiencing person says it is, existing whenever he says it does' (Scott, 1992, p. 13). Five of the students (22%) and fifteen of the nurses (52%) opposed or were unsure of the mirror image choice stating, 'What the patient states about his pain is always true' (Scott, 1992, p. 13). When asked if pain should be assessed every 1-2 hours or every 24 hours, 46 percent of the respondents showed inconsistencies by agreeing with both statements; suggesting uncertainty about the correct frequency of assessment. One hundred percent (100%) of the students and 69 percent of staff nurses agreed that assessment scales had been helpful for assessing pain. The remaining 31 percent of nurses either had no comment or reported never having used a pain scale. The most commonly used pain scale reported by students (28%) and nurses (38%) was the numeric rating scale. Other scales mentioned included visual analogues and descriptive scales.

Although sixteen of the 33 statements in the survey instrument used in the study were derived from a previously used tool, there was no mention of its validity or reliability. The remaining items were not validated by experts or pilot tested. The work of Davis has been credited in the two previously mentioned studies. A potential problem in this study was the rating scale. One must use caution with true and false statements containing absolutes such as always, all, none, and never. Many such statements were used in this questionnaire. Examples include:

- 'What the patient says about his pain is always true.'
- 'Pain assessment should always be documented.'
- 'All real pain has an identifiable cause.'
- 'Analgesics are always the best way of reducing pain.'

The first two statements are true, and the last two statements are false. When students learn test-taking skills, they are taught that absolute statements are often false. This may be the reason why many of the participants incorrectly responded “false” in the first two statements. If the tool had been tested for content validity, this fallacy may have been identified. It is important to ascertain that question construction is not a problem in measuring the desired content area.

McCaffery, Ferrell, and Pasero (2000) conducted a descriptive study to analyze the effects of nurses’ personal opinions about pain on their documented assessments and treatments. The instrument was a case vignette, often referred to as the Andrew-Robert Survey, depicting two patients exhibiting the same clinical signs and symptoms, except for their behavior. This tool has been used extensively, pilot tested, and shown to have validity. An additional question was added to the original survey by the researchers for this study. For both patient vignettes, the first question stated, ‘On the scale below, please circle the number that represents your personal, private opinion of the intensity of this patient’s pain’ (McCaffery, et al., 2000, p. 86). Although there was no correct answer for this question, it allowed the researchers to delve deeper into the subjects’ thought processes as they gathered information, processed it, made judgments, and then took action. Data collection took place in 20 locations across the western, midwestern, southern, and eastern United States during workshops in 1998. Surveys were administered before the lecturer presented any content. After data collection, one hundred surveys were randomly selected from the total ($n = 1,276$) in each of the four regions. This yielded a sample of 400. In this sample, nurses tended to accept the grimacing patient’s reports of pain intensity more often than the smiling patient’s in the

vignettes. Eighty-five percent (85%) of the nurses correctly recorded the smiling patient's pain intensity on the chart, although only 39.5 percent said they sincerely believed the patient's verbal rating. Ninety percent (90%) of the nurses recorded the grimacing patient's rating, when only 78.3 percent personally believed this rating was true. Fewer nurses were willing to increase the dosage of morphine for the smiling patient (47.3%) than for the grimacing patient (62.5%) in the vignette. Almost thirty percent (29.8%) of the nurses either undermedicated or gave no pain medication at all. From the sample of nurses who felt it safe to administer the full dosage of morphine to the grimacing patient, 16.3 percent did not offer the same pain relief measure for the smiling patient (McCaffery, et al, 2000).

Howell, Butler, Vincent, Watt-Watson, and Stearns (2000) investigated nurses' knowledge, attitudes, and behaviors related to cancer pain before and after an educational intervention at a Canadian hospital. The 46-item Nurses Knowledge and Attitudes Scale (NKAS) was used for collecting data from the nurses. Content validity of this tool has been established as well as internal consistency (> 0.70) for knowledge and attitude items and test-retest reliability (> 0.80). Participants included 53 nurses from six oncology units. Scores on the survey were examined prior to the 8-hour inservice, immediately after the inservice, and again three months later. Baseline results revealed 43.4 percent of the nurses believing that patients should experience pain as a prerequisite to receiving more pain medication. This misconception improved immediately after the class, but was not sustained three months later. Unfortunately, only one-third of the respondents believed patients should expect total pain relief prior to attending the class. This percentage rose to fifty-seven immediately after educational intervention and then

declined again at three months. Seventy-seven percent (77%) were not concerned with patients becoming addicted, and 83 percent selected the appropriate definition for the term tolerance. All nurses (100%) correctly responded that patient reports were the best indicator of pain intensity, although when presented with a hypothetical case situation, only 88.5 percent chose the appropriate pain intensity rating and only 63.5 percent selected the correct analgesia dosage for the patient who was laughing and joking. This improved immediately after the educational intervention with respective scores of 98.1 percent and 82.7 percent. Three months later correct pain ratings reverted back to only 88.6 percent, while sufficient dosages of pain medication improved with 86.4 percent administering 3mg morphine. The major barrier to pain relief reported by the participants was the patient's reluctance to report pain (59%). Other barriers included incorrect assessments and inadequate knowledge (Howell, et al., 2000).

The original design of this study included an additional assessment of knowledge, attitudes and practices six months after the educational program; however, due to the limited number of returned surveys, these data were not included in the statistics. The presentation of results was difficult for the reader to follow and could have been improved by using more tables to illustrate progression and decline between each data collection phase.

A qualitative research study by Nash, Yates, Edwards, Gentiman, Dewar, McDowell, and Clark (1999) elicited rich narrative data from nineteen participants in one Australian hospital. Twelve registered nurses and six nursing students were interviewed. The 60-75 minute interactions were audiotaped and transcribed verbatim. Four major themes emerged: 1. 'The pivotal role of nurses in pain management;' 2. 'Nursing

assessment and its influence on pain management decisions;' 3. 'Individual factors influencing nurses' pain management decisions;' 4. 'The influence of others on nurses' pain management decisions' (Nash, et al., 1999, p. 2). Behavioral factors and physiological signs influenced nurses' decisions about administering analgesics. For example, one nurse stated, 'Physical things dictate a lot: how the person looks, if they look like they're in pain, if their blood pressure is up, their pulse is up' (Nash, et al., 1999, p. 5). Nurses also commented about tools for improving pain assessment. For example,

"We use a post-operative assessment tool; every time we do their observation, we assess their pain and their nausea. We used to never ask them how they were feeling pain-wise. I think it's alerted people a lot more" (Nash, et al., 1999, p. 6).

Participants generally agreed that continued education was important for assuring quality pain management. One participant commented, 'I think education's a big factor and not just your undergraduate. It's got to be ongoing, and involvement with pain management teams and hospice teams and things like that really open your eyes' (Nash, et al., 1999, p. 7). Several nurses credited teamwork and collaboration with others as an important factor in their effective pain management. One comment was, 'I just think it's a lot of give and take between doctors and nursing staff and patients; you've got to work together to actively relieve pain' (Nash, et al., 1999, p. 8). Contrarily, others perceived a lack of cohesion and support from coworkers, commenting,

"It was very judgmental. They (other staff) couldn't handle people standing up and going against the flow and we really wore it, my friend and I. Only two of us on the ward ever tried to stand up and say, 'Hey listen, he's in pain'" (Nash, et al., 1999, p. 9).

Two different viewpoints were represented regarding fears of addiction among the participants. One expressed,

“I don’t ever worry about making somebody a drug addict. I think nurses used to have a mentality in the old days, if you gave them too much Pethidine, they’d become addicts, but I think that’s changed now. I think people are a bit more realistic” (Nash, et al., 1999, p. 10).

On the other hand, comments of other participants revealed anxiety about addiction. For example, ‘I think they’ve had so much pain relief that they are addicted to it and really, they need to, in my opinion, have some sort of help for them to overcome that addiction’ (Nash, et al., 1999, p. 10). An insightful comment that has rarely been addressed in other studies had to do with the verbiage nurses use when referring to patients in pain. The nurse stated,

“I think sometimes our terminology is wrong. I think it’s damaging to say that so and so is complaining of pain because straight away there is a negative connotation to it. I mean they’re complaining of pain and four hours later they’re complaining of pain again. It makes it sound as if they’re continually complaining. But if they are ‘reporting’ they have pain, it doesn’t seem to have the same sort of negative feel to it” (Nash et al., 1999, p. 11).

It is important to investigate qualitative studies as well as quantitative. Large sample sizes, numbers, and figures provide a breadth of information, while interviews enhance depth. Triangulation facilitates a holistic view of the issue. Because the previously discussed study was voluntary, it is likely that the results portray a portion of the population that had a prior interest in the subject. While results were representative of these participants, they cannot be generalized to larger populations. The authors should be commended for presenting themes, as well as opposing views, and including many direct quotes.

A Pain Monitoring Program (PMP) for nurses was developed, implemented, and evaluated to determine nurses' knowledge and attitudes about pain in the Netherlands. The study by de Rond, de Wit, van Dam, van Campen, den Hartog, and Klievink (2000) had a one-group pretest-posttest design utilizing a demographic questionnaire, a Dutch version of Ferrell's Patient Pain Questionnaire, and a Pain Attitude Inventory (PAI), developed by the researchers. The Pain Knowledge Questionnaire-Dutch Language Version (PKQ-DLV) was so named by the researchers and included 8 statements to be marked either true or false. This instrument was originally developed by Betty Ferrell to test the knowledge of cancer patients. Researchers stated, "...the questions also seemed suitable to test the basic knowledge of nurses" (de Rond, et al., 2000, p. 459). The 8-item PKQ-DLV was translated and pre-tested with a group of 49 patients. "It demonstrated acceptable levels of validity and reliability" (de Rond, et al., 2000, p. 459). The PAI was a newly developed 9-item survey and there was no mention of its validity or reliability.

At pretest, 175 nurses' surveys were analyzed and 144 at post-test. The educational intervention was a three-hour lecture and discussion of knowledge and attitudes about pain assessment, pain management, and non-drug interventions. Pre-test data were collected immediately prior to the class and post-testing was conducted six months after the intervention. Baseline scores on the PKQ-DLV ranged from 37.5 percent to 100 percent with an average of 69.1 percent (SD = 13.2). Six months later, the mean score was 75.8 percent (SD = 11.5), showing a 6.7 percent increase ($P < 0.001$). A comparison of pre- and post-test results showed an increase from 57.7 percent to 73.6 percent ($p < 0.01$) in the number of nurses who believed they possessed adequate knowledge and skills to manage pain. A significant decrease was observed in the number

of nurses willing to assess and record pain on a daily basis from baseline (87.4 %) to post-intervention (77.1 %). “After six months of assessing pain on a daily basis, nurses from surgical wards were less enthusiastic about daily pain assessment. According to surgical nurses, patients had difficulty with expressing their pain in a number, daily pain assessment took additional time, and physicians did not make adequate use of the pain assessment” (de Rond, 2000, p. 464).

The timing of this study contributed to the poor design. A comment made in the methods section of the report states, “To our knowledge, four wards were extremely busy and had problems with staffing due to illness” (de Rond, et al., 2000, p. 458). Results would have been more representative of the true population if data had been collected at a different point in time. Betty Ferrell’s questionnaire was not appropriate for this study because it was developed with the intent of identifying knowledge barriers in patient populations. Instead of pilot-testing the instrument with nurses, the researchers quoted acceptable levels of validity and reliability based on an unpublished report using a group of 49 patients. The researchers, using some items from the Wisconsin Pain Initiative Survey, developed the Patient Attitude Inventory; however, there was no mention of psychometric testing. It was commendable that the researchers excluded nursing students from the sample because they would not have been present for the six-month post-testing. Whenever a tool is used for research, the reader of the study should be supplied with the correct answers, but this was not true for the PKQ-DLV. When correlations were presented, the directionality of the significant results was not evident to the reader. Authors presented several limitations in the discussion, including the brevity of the educational session, absence of a control group, and 31 nurses represented in the pre-test

who were not included in the post-test. Researchers also mentioned that the PAI had never been used before.

Chuk (1999) found that vital signs influenced nurses' assessments and medication administration for patients in pain following heart surgery. The sample included 26 nurses working in a cardiac intensive care unit in Sydney, Australia. Chuk modified and adapted McCaffery and Ferrell's 'Andrew-Robert' case vignette for the purposes of this study. Vignettes included patients with similar characteristics, with the exception slightly elevated vital signs in one of the scenarios. Vital signs were at the low and high ends of stable range. Nurses were asked to rate the patients' pain intensity level on a scale of 0-5. Both patients rated their pain as a 4. Results showed a significant difference ($P < 0.01$) in nurses' recorded pain intensity levels for the two vignettes. Nurses documented higher pain ratings for the patient with elevated vital signs. The nurses' titrated dosages of pain medication showed similar differences with increased amounts being administered to the patient with slightly elevated vital signs. Nurses incorrectly believed the vital signs must be elevated in order to believe the self-report. "Some of the nurses working in the CTICU believed that a relationship always existed between vital signs and pain" (Chuk, 1999, p. 863). Nurses were also mistakenly concerned with respiratory depression for both patient vignettes.

Hamilton and Edgar (1992) surveyed nurses to determine their knowledge of pain control, without focusing on myths and biases as other studies have done. The population consisted of 518 staff nurses in twenty-two areas of one acute care Canadian hospital. Instrumentation included two questionnaires developed by Margo McCaffery that were combined and revised to answer the research questions. The completed instrument was

mostly true/false with some multiple-choice items and demographic information. No information about validity or reliability was included in the report. Two hundred sixty three (263) nurses failed to respond, rendering a 54.7 percent response rate and a total sample size of 318. Results showed an average knowledge score of 63.9 percent (SD 12.4) with a range of 18.8 percent to 96.9 percent. Twenty-one (7%) of the nurses scored less than 50 percent, while 42 (~ 8%) scored above 80 percent. A typographical error kept the respondents from correctly answering one of the questions. Twenty-nine percent (29%) incorrectly believed that the likelihood of addiction to opioids, when taken for pain relief, was greater than 25 percent. The question most frequently missed dealt with equivalent dosing. Less than half (49.9%) of the nurses correctly identified that there was no ceiling on the dosage of morphine that could be administered. Researchers unexpectedly found the instrument itself to be an effective learning tool, especially when feedback was given soon after administration. “Findings do indicate, however, that nurses lack information in pain management that is not necessarily tied to myths or bias” (Hamilton, et al., 1992, p. 25).

A study by Manias, Botti, and Bucknall (2002) investigated the barriers to pain relief in an observational study carried out in an Australian surgical ward. Consenting nurses were randomly selected and observed for a two-hour period by a research assistant. To prevent observer bias, only one person recorded observations. Interactions pertaining to pain or comfort measures were recorded with audiotapes. Twelve observations were conducted with twelve registered nurses. Four major themes emerged from the qualitative data. The first theme was ‘nurses’ responses to interruptions when carrying out activities relating to pain’ (Manias, et al., 2002, p. 728). Investigators found

that this theme occurred most frequently and appeared to be the major barrier to effective pain management. Interruptions such as administering other scheduled medications, answering or making telephone calls, assisting nursing students, and trying to locate equipment caused a delay in time between the patients' requests for pain medications and the nurses' implementations. All of these interventions needed to be performed on time and the juggling of these tasks caused patients to wait extended periods for comfort measures. Other interruptions included being interrupted by other staff, physicians, or secretaries.

Theme two was 'nurses attending to cues relating to their patients' pain' (Manias, et al., 2002, p. 728). Researchers found that nurses were very attentive to reports of pain while performing other assessments such as vital signs. However, at other times, nurses did not make the necessary efforts to relieve or prevent pain. During all twelve observations, nurses were observed asking patients how they were coping with pain, rather than trying to alleviate it with analgesia beforehand.

The third theme was 'nurses' interpretation of pain' (Manias, et al., 2002, p. 729). Observations showed nurses associating pain with surgical incisions rather than considering other sources of pain. For example, inexperienced nurses tried to access the vein of a patient several times for a blood specimen without questioning his comfort level.

Theme four was 'nurses' attempts to address competing demands of nurses, doctors, and patients' (Manias, et al., 2002, p. 730). Investigators found it common for nurses to be interrupted by a physician who wanted her to make rounds with him. Nurses

used this time to advocate for their patients' needs. There was often conflict between what the nurse recommended and what the doctor prescribed.

Anytime there are new faces on a hospital floor, especially when they are observing the nurses' activities, there is a heightened sense of awareness that may skew results. Observational designs have been uncommon in the area of pain assessment, which makes this study valuable. The researchers took measures to prevent observer bias and the investigator spent numerous hours in the field collecting data. This study goes a step further than other studies have gone by addressing the complexities of caring for a group of patients and dealing with the extraneous variables that interfere with pain management. "...Pain decisions are not simply matters relating to education and compliance with a medication order but are the result of the complex interplay of many activities" (Manias, et al., 2002, p. 732).

Summary of Findings and Relevance to the Current Study

Pain assessment and treatment go hand in hand. It is hoped that accurate and thorough assessments will lead to effective treatment, but the literature shows deficiencies in pain management despite proper assessment techniques. Lack of knowledge and confidence in decision-making, negative attitudes, and personal opinions have all led nurses to undermedicate patients in pain. Some attribute this problem to poor communication among healthcare personnel and patients.

Nurse educators have a large responsibility to help mold students' ways of knowing and reacting to patients in pain. The rationales for students' correct and incorrect pain management decisions are major issues addressed in the current research study.

Research About Inhibitors to Accurate Pain Assessment and Management

In Greipp's Model of Ethical Decision Making in the management of client's pain, she identified specific 'learned potential inhibitors'. These inhibitors are factors to be considered for both the nurse and the patient. Greipp identified these characteristics as personal and professional experiences, culture, and belief systems.

Allcock (1996) conducted a thorough review of the literature to explore factors that influenced nurses' assessment of pain. She found that much of the research was contradictory; however, numerous factors were described as important. Patient characteristics such as socio-economic status, illness severity, gender, age, evidence of pathology, and ethnic variation were examined. Nurse characteristics such as clinical experience, age, ethnic background, personal experience with pain, and educational background were shown to be important considerations. The author concluded that more research was necessary to clarify the effects of these characteristics on pain assessment and management (Allcock, 1996).

Holm, Cohen, Dudas, Medema, and Allen (1989) designed a study to determine the effects of personal pain experiences on pain assessment. Nurses were randomly chosen from three hospitals in two midwestern cities in the U.S. Instruments included a sociodemographic questionnaire, a personal pain history questionnaire, which was pilot tested and shown to have content validity, and the widely used Standard Measure of Inferences of Suffering Questionnaire developed by Davitz and Davitz in 1981. Headaches, menstrual discomfort, and dental pain were the most frequently reported painful events reported by 134 nurse participants. Eighty-one (60.4%) of the respondents had witnessed a family member having a painful experience. Eight percent (8%) of the

respondents reported that they, or a close friend or family member, had experienced addiction to analgesics. Results showed that assessment of patient's pain was significantly influenced by the intensity of nurses' personal pain occurrences ($F = 4.3213$, $p < 0.05$). Other personal characteristics such as 'frequency of painful episodes' and 'time as a registered nurse' were not significant influences. When the pain history and sociodemographic surveys were reviewed, nurses indicating a religious preference inferred significantly less ($p < 0.01$) physical pain than those reporting no religious preference (Holm, et al., 1989). The researcher was unsure as to why religion contributed to significant differences in pain assessment. This is an area of personal bias that warrants further investigation. Overall, this study was well designed with legitimate instruments and an adequate sample size.

Gerstle (2001), a doctoral student at the University of Tennessee, completed his doctoral dissertation on the topic of pain, considering the relationship of selected nurse characteristics. Gerstle examined nurse factors such as age, education, nursing experience, personal pain experiences, pain relief goals, and addiction attitudes. He sought to determine if there was a relationship between these factors and nurses' moral judgments, perceptions, and judgments of pain. Three instruments were used in the study including a demographic questionnaire designed by Gerstle, McCaffery and Ferrell's case vignette, and Rest's Defining Issues Test Two. The instruments have been widely used and shown to be valid. Surveys were distributed to 125 nurses in southeast Tennessee hospitals and 101 usable surveys were returned for analysis. When age was broken into groups above and below the median, a negative correlation resulted between age and moral judgment ($r = -.232$, $p = .019$). Findings suggested increased age contributed to

lower moral judgment scores. When educational level was examined alone, significant correlations were found between moral judgment of associate degree nurses and pain rating scores ($r = .291$, $p = 0.035$). Baccalaureate nurses undermedicated more often in the vignette scenario as the moral judgment score increased ($\rho = -.386$, $p = .024$). Gerstle found that the variables of professional experience ($\rho = -.251$, $p = .012$), and personal experience with pain ($\rho = -.264$, $p = 0.008$) were negatively correlated with attitudes toward risk of addiction.

Selected nurse characteristics were examined in relation to pain assessment in a study by Dudley and Holm (1984). From a population of 114 full-time nurses on various units of a large Chicago university hospital, 50 nurses were randomly selected for the study. The Standard Measure of Inferences of Suffering, the Job Descriptive Index (JDI), and a sociodemographic questionnaire were all used as instruments. The authors speak of internal consistency for the first mentioned tool; however, there was no information included about validity or reliability of the instruments. Results showed that nurses inferred significantly less pain than psychological distress ($p < 0.01$). No significant differences were found between nurses' reports of pain intensity or psychological distress and characteristics such as professional experience, age, job satisfaction, education, area of expertise, or shift assignment (Dudley, et al., 1984). In the inference of suffering, results showed significant differences with the category of 'illness/injury' and no differences with patient age or sex. The respondents perceived trauma as the most physically painful event, while psychiatric problems were seen as the greatest cause of psychological distress. "We must acknowledge that the process involved in making

clinical judgments may be incomplete and that in the final analysis, only the patient knows where the pain is and how much it hurts” (Dudley, et al., 1984, p. 185).

McCaffery and Ferrell (1997) considered learned potential inhibitors in their study examining the influence of the professional role versus a personal role in assessing and treating pain. The research question to be answered was, ‘When the nurse makes decisions as a family member, is the quality of pain management different than when the nurse assumes the role of nurse?’ (McCaffery, et al., 1997, p. 70). The vignettes, developed by the researchers and used in this investigation, have been widely used and shown to be valid. For the purposes of this study, the two vignettes were adapted so that the only difference was the assumed role of the respondent. Vignette #1 states, ‘You are visiting your brother, Andy...’ and vignette #2 states, ‘Andy is 25 years old...you are his nurse.’ Surveys were collected from a convenience sample of nurses attending pain conferences in Lexington, KY; Modesto, CA; Tucson, AZ; and Fort Wayne, IN. Half of the respondents randomly received surveys designating them as the patient’s sibling, while the other half received surveys assigning them to the role of a nurse.

Characteristics of the 607 respondents were similar. For nurses reporting the pain intensity for the sibling in the vignette, 86 percent responded with the correct rating while only 63 percent of the subjects, responding as the nurse, reported the patient’s self-report. Fifty-eight percent of the nurses responding as siblings administered the recommended dosage of morphine, whereas only 47 percent responded correctly when acting as nurses. Participants’ concerns about side effects were greater with the group assuming the role of the sibling. Sixty-one percent (61%) of the total sample was overly concerned about respiratory depression and 49 percent were concerned about tolerance to opioids. Neither

group had a significant number of members concerned with addiction (7% to 12%) or physical dependence (3% to 8%). Nurses, when assuming the role of the healthcare provider, showed more reluctance in administering higher doses of morphine. As a result of the study, authors suggested that nurses should place themselves in the position of a family member when making choices about medication administration. "A question might even be posted on the narcotic box asking, 'What would I want done if this were my family member?'" (McCaffery, et al., 1997, p. 76). "Therefore, to facilitate the nurse's progression from novice to expert in the area of pain management, the results of these surveys suggest that continuing education needs to include an emphasis on both empathy and the facts...Neither alone will suffice (McCaffery, et al., 1997, p. 76).

Results of this study engaged readers with the concept of cognitive dissonance and suggested reduced sensitivity to patients' needs when compared with the needs of family members. It would have been interesting to see the study results if the researcher had administered both vignettes to each participant, rather than having two groups, each responding to only one scenario. This would have shown the similarities or differences of one person's response, depending on his or her designated status as sibling or nurse. Since the surveys were randomly distributed and the groups showed similar demographic characteristics, the validity of the results was improved.

The cultural background of the nurse and the patient can have influences on pain management and the expression of pain. In an article entitled, 'When Culture Clashes With Pain Control,' Ferrell (1995) suggested devising a plan for pain management that is based on behaviors, beliefs, and personal values. Ancello (2000) emphasized the

importance of culturally appropriate assessments, keeping in mind practices and values, while always believing the patient's self-report of pain.

Hiscock and Kadawatage (1999) studied nurses' and patients' attitudes about pain from two different cultures. Two questionnaires were used in this study; one was for patients and the other was for nurses. No information was included about the validity or reliability of the instruments. The attitude and pain questionnaire had been adapted from a previous tool. Since the study was conducted in two different cultures, the English version was used in a London, United Kingdom hospital and a translated version was used in Sri Lanka, a large island off the southern coast of India. Sixty patients and sixty nurses participated in the study. Ninety-seven percent (97%) of the U.K. nurses saw the patient's self report of pain as the most reliable indicator, whereas, 73 percent of the Sri Lankan nurses believed they were better qualified than the patient to infer pain intensity. From the sample of Sri Lankan nurses, 73 percent of the nurses believed their assessments and inferences of pain to always be accurate, whereas only 3 percent of London nurses agreed. Ninety-four percent (94%) of the respondents from Sri Lanka had disbelief about patient reports of pain, while only 20 percent of U.K. nurses felt the same. Seventy percent (70%) of Sri Lankan nurses and 9 percent of London nurses worried about addiction to narcotics. More patients (80%) in Sri Lanka expressed that they would prefer to be alone when compared to patients in the U.K. (26%). Sri Lankan patients showed more hesitation in reporting pain (73%) than U.K. patients (33%). Sociodemographic variables revealed that Sri Lankan nurses had no education about pain management in nursing school or since graduation. Nurses from the United Kingdom had a nursing course in which pain management was taught. The nurse to patient ratio in

U.K. was 1 to 7, whereas four nurses in Sri Lanka were responsible for 60-70 patients on the unit.

The limited resources in Sri Lanka have an impact on the results of this study. The author reported that families are the ones responsible for bathing and feeding patients in Sri Lanka, while nursing staff provide total care for patients in the United Kingdom. Also, educational materials were not available for patients or nurses in Sri Lanka. It is important for nurses to consider cultural implications when caring for patients who may travel from other countries to receive more advanced medical treatment. Due to the results of this study, the Royal Brompton Hospital now corresponds with the hospital in Sri Lanka through a nurse exchange program where Sri Lankan nurses are now learning about pain assessment and around the clock management of pain with opioids.

A learned potential inhibitor not included in Greipp's model includes patients' and nurses' exaggerated fears of addiction. A possible explanation for the magnified concerns about addiction is the American society's 'Just Say No To Drugs' campaign. The general public steers away from pain medication and uses non-drug methods to control pain when possible (McCaffery & Ferrell., 1996).

Ferrell, McCaffery, and Rhiner (1992) recommended an urgent change in nursing education when they found confusing terminology within nursing textbooks related to addiction. Fourteen textbooks were reviewed including eight pharmacology and six medical-surgical texts. None of the textbooks reviewed presented standardized definitions for the terms addiction, tolerance, and dependence. "The weaknesses found in these texts were due to both inaccurate and confusing information concerning addiction and omission of vital information that the student needs as a foundation for nursing

practice” (Ferrell, et al., 1992, p. 121). Only one of the textbooks reviewed by the researchers accurately stated the likelihood of addiction as less than one percent (<1%) when consumed for purposes of pain control. The researchers recommended that nursing faculty supplement their instructional materials with information from the American Pain Society until textbooks incorporated clear and accurate information.

In addition to this finding, Allcock and Toft (2003) conducted a longitudinal survey of 217 nursing students during the first eighteen months of their nursing program in the United Kingdom. The purposes of this study were to investigate students’ beliefs about narcotics and addiction, to see how their views changed regarding the risk of addiction over time, to understand the rationale for the students’ fears of addiction, and to make recommendations to nurse educators. The instrument was an adapted version of the Standard Measure of Inferences of Suffering (SMIS) that was composed of 60 brief case vignettes. The students recorded a pain rating and described the psychological distress and addiction risk for each patient scenario. At the beginning of the eighteen-month period, only 23.9 percent of the students who responded to this question correctly identified the risk of addiction as less than one percent (<1%). Almost 10 percent of the respondents believed the risk of addiction was between 26-75 percent. By the end of the program, there were 136 students who answered the question about addiction during both phases of data collection. Of those students, 62 (45.5 %) indicated a lower risk than previously identified, whereas 22 (16%) described a higher risk, and 52 (38%) maintained the same views. At the end of the program, 44.9 percent of the respondents believed the risk to be less than one percent (<1%) while the remaining 97 students (55.1 %) continued to have exaggerated fears about addiction (Allcock, et al., 2003). In the

discussion, authors summarized the findings and suggested, “It is important also to explore the wider framework of beliefs and attitudes held by students... This highlights the need for educational strategies to be developed to enable students to reflect upon their own views about drugs as well as their perceptions of the risk of addiction” (Allcock, et al., 2003, p. 130).

The study described above was a segment of a larger study that included an additional qualitative inquiry. After the results were tabulated at the end of the foundational program, the ten students with the largest gain in scores and the largest drop in scores were asked to participate in a 35-50 minute semi-structured interview to further explore their experiences. Fifteen students consented and interactions were recorded at sites convenient to the students.

The article by Allcock and Standen (2001) focused on the fourth major topic that loomed from the interviews called ‘students’ reactions of caring for patients in pain’ (p. 289). However, there were a total of five major themes. The first was the emotional responses students had to patients in pain. A number of students found it upsetting to observe patients in pain and felt helpless at times because of their limited knowledge and authority to intervene. On the other hand, when patients spoke of their pain being under control, students described feeling fulfilled and satisfied. The second theme was discussion of the role of a student. Students expressed a lack of positive influence and often perceived the staff as negative role models. Feelings of frustration and awkwardness emerged when speaking about their restraints due to the limited autonomy of a student. Being a go-between was the third theme. Participants perceived their role of student as a ‘liaison’ or ‘gofer’ that ultimately put them in difficult positions at times

when the nurses were unable to respond to patient needs quickly. This position often caused students to feel uncomfortable when going back into the patient's room. For example, one student commented, 'Again, it's bad because if you see that they are in pain and you go and tell them you know the person who's got the keys...and you go back an hour later and he's still in pain, you feel awful and you know it makes you feel stupid as though you've not passed the message on...' (Allcock, et al., 2001, p. 292). The fourth theme was coping. Students did a number of things to cope with the feelings they had about patients in pain, including making reference to personal experiences and thinking of the limited time they actually spent with the patient. The fifth theme involved students' feelings about causing pain and discomfort for patients. Almost all of the participants found it upsetting when they had to perform treatments that caused discomfort. After doing procedures several times, such as giving injections, students described feeling more at ease.

Both of these studies were beneficial to the field of nursing education. They produced rich data for analysis. Educators need to be aware of the emotional demands students struggle with and strive to allay their fears and frustrations.

The final learned potential inhibitor found in the literature is inferred in Greipp's model when she describes the physiological, verbal, and nonverbal expressions of pain. Laughter and humor are encouraged as a supplement to pain management, not in lieu of analgesics (Pasero, 1998). Patients often use humor as a distraction. Martin (2002) found benefits of humor and laughter for immunity, pain tolerance, blood pressure, longevity, and illness. Although the effects of laughter and humor are often positive, these behavioral manifestations can also serve as inhibitors to proper assessment and

treatment (Chuk, 2002, & McCaffery, 1991). Further education is needed to teach patients about this method of distraction. Nurses must also be instructed to administer analgesics despite observing patients who laugh and joke with others.

Summary of Findings and Relevance to the Study

There has been much investigation into the inhibitors of effective pain assessment and management through nursing research. The literature shows differences in treatment for pain based on demographic variables, as well as personal and professional experiences of the nurse.

Personal traits of the caregiver such as ethnicity, age, gender, education, and previous experiences are all addressed in the current research study. These characteristics need to be examined by nursing faculty to improve treatment consistency.

Research in Pain Assessment and Management Education

Although nurses learn new information on a daily basis, the foundation of their knowledge is established in nursing school. Since research shows inadequate nursing knowledge regarding pain, this has implications for nursing education. The breakdown in knowledge could stem from an insufficient amount of time allotted in the curriculum for delivering pain content which would subsequently lead to inadequate student knowledge (Davies & McVicar, 2000). It is necessary to show that students have adequate knowledge levels in the senior year, before they graduate. It is possible for a graduate to pass the National Council Licensure Examination still believing myths and holding misconceptions about pain.

The International Association for the Study of Pain (IASP) Task Force on Professional Education (1991) identified core curriculum components for professional pain education that included the following:

- “...pain is a subjective experience with important affective, cognitive, and behavioral as well as sensory mechanisms” (p. 8).
- “Distinguish between pain as a subjective experience, pain behavior as a pattern of visible behavior with social consequences, and pain disabilities, as defined by the individual’s ability to maintain involvement in life activities” (p. 8).
- “Recognize that pain is experienced in the context of complex emotional and thoughts” (p. 8).
- “Know that pain measurement is fundamentally inferential, i.e., while the objective is understanding the subjective experience, this only can be accomplished through the interpretation of the self-report and non-vocal behavior of the individual” (p. 8).

An ad hoc committee of the International Association for the Study of Pain presented pain curriculum guidelines for nursing education in a 1994 journal article. It is important for educators to examine their curriculum for these essential principles:

- “Pain is viewed as a multidimensional experience that has many components in addition to nociception. These include sensory, emotional, cognitive, developmental, behavioral, and cultural components, all of which may influence pain perception and response” (p. 64).
- “Pain must be regularly and appropriately assessed in systematic ways and the assessment should be considered a necessary part of management” (p. 65).

- “Pain assessment and management, integral aspects of nursing care, must involve the patient and be ongoing” (p. 65).
- “Pain assessment and management must be recorded in a readily accessible and visible manner; pain assessment serves as a guide to intervention, not as an end in itself” (p. 65).

Students do not enter nursing school as blank slates. They have previous life experiences that have shaped their thoughts about pain and drug management. A 1996 study by McCaffery and Ferrell revealed that non-nursing college students possessed misconceptions similar to those of practicing nurses. A case vignette used to identify knowledge and attitudes was adapted for non-nursing participants and administered to undergraduate students enrolled in history classes. The case vignette has established validity and has been widely used. Each case vignette has been pilot tested with at least 100 participants at workshops across the United States. A convenience sample of 85 students who were not enrolled in nursing classes participated in the study. After reading the case study, they were asked to circle the number that represented the patient’s pain. They could decide to give no medication, half the dose that was ineffective before, the same dose, or a higher dose. Results revealed 38 percent of the students correctly rated the smiling patient’s pain intensity and 66 percent correctly rated the frowning patient’s pain intensity. Only 12.9 percent increased the dosage of morphine for the smiling patient while 16.5 percent increased the dose for the frowning patient. College students reported fears of addiction and tolerance to medications as reasons for not administering a higher dosage of analgesia (McCaffery & Ferrell, 1996). This study suggested that college/university students may believe in myths and have false information about pain

management prior to entering nursing programs. Nursing educators must begin by acknowledging their own misconceptions and then assessing student knowledge and attitudes before presenting content in the classroom.

A qualitative study of nursing students' knowledge and attitudes was conducted through interviews and focus groups as part of the National Cancer Institute's Cancer Education Module for the Management of Pain (CEMMP) project in 2002. The participants, all from Boston, who had cared for patients in pain or had seen loved ones deal with severe pain, identified 'unnecessary suffering' as an important rationale for including more pain management in the curriculum. One undergraduate nursing student stated, 'I've seen cancer patients for years that should never have been in the pain they were in, and people were afraid they were going to get addicted or [die] so they didn't treat them appropriately' (Lasch, Greenhill, Wilkes, Carr, Lee, Blanchard, 2002, p. 61).

Nursing faculty participating in the study frequently expressed concerns about misconceptions students bring with them in their early clinical experiences. One teacher stated, 'It's information that I think many people in healthcare take for granted, that everyone will know what to do under those circumstances, and they don't' (Lasch, et al., 2002, p. 63). Nursing students who had been exposed to pain management in the curriculum were familiar with pain scales, knew questions to ask patients in pain, and addressed trust issues such as believing the patient's self-report of pain. One student stated,

"What I think [the faculty] try to do is focus on the fact that it is a critical judgment and you have to assess [pain] so that when it does come later on in our careers, we don't dismiss it. Maybe it's not adequate as far as how much time they give to it, but I feel like that's been drilled into my

head...so when it comes up again, we won't be as likely to not find that an important thing to look at" (Lasch, et al., 2002, p. 64).

Another student mimicked previous research findings when stating, 'I think that [when] nurses go into nursing they already have had their own idea of what pain is because of their own experiences with pain. So, they may subject their patients to their own experiences and that's more judgmental' (Lasch, et al., p. 66).

Implications of this study suggested that educators must assess their own biases as well as those of their students and realize that students' misconceptions are likely to filter into their interactions with patients if not dealt with early in the program of study. Findings suggested that students may develop a watchful eye for 'drug-seeking' behaviors due to messages from a hidden curriculum that nursing faculty portray by attitude and example, rather than by explicit content presented in the classroom.

A study of final year Australian and Philippine nursing students from three major universities revealed a knowledge deficit in pain. Chiu, Trinca, Lim, and Tuazon (2003) administered a 30-item questionnaire with 23 true/false knowledge questions and 7 demographic questions to 150 senior students. A panel of three medical professors and two pain clinic directors concurred with the instrument's validity. Reliability was established with a test/retest correlation measuring 0.88. Results showed a low knowledge level in both groups of students and no significant differences were found between the groups in overall knowledge. Students perceived their education to be minimal in the area of pain; only 36 percent Australian and 50 percent Filipino students considered their pain knowledge adequate for clinical needs. Conclusions of the study "alert nurse educators to re-evaluate the pain content in the nursing curricula for its

accuracy and currency” and develop core learning objectives for pain management (Chiu, Trinca, Lim, Tuazon, 2003 p. 106).

This study was poorly conducted and results are not generalizeable. During data collection at one school, only 54 percent of the students were present because they were attending interviews and clinicals. Students’ perceptions about what they learned in a content area may not be representative of the true knowledge gained. The groups were asked to give their opinions as to whether medical students should be able to correctly respond to the true/false statements. One must question the rationale for and usefulness of this portion of the study. It is unclear how this is beneficial to the field of nursing or education. Statements requiring a true or false response are often not predictive of a student’s knowledge base. Researchers should be commended; however, for allowing the students to respond ‘don’t know’ to statements they were unsure of, instead of simply guessing.

A descriptive study by Sheehan, Webb, Bower, and Einsporn (1992) was conducted to determine senior baccalaureate students’ knowledge of cancer pain. Three colleges were randomly selected from the seven accredited nursing programs in northeastern Ohio. Two hundred nine (209) eligible participants were invited to be a part of the study, although only 82 agreed, resulting in a total response rate of 28 percent. A demographic questionnaire provided data about personal traits and the Cancer Pain Knowledge Questionnaire, developed at the University of Wisconsin-Madison, was used as the major source for data collection. There was no mention of this instrument’s validity or reliability within the article. It is important for nursing educators to provide students with information about cancer pain management; however, this study revealed

that only 13 percent of the responding students believed cancer pain management should be a part of the curriculum (Sheehan, et al., 1992). In the same study, 82 baccalaureate nursing students in their final semester showed specific knowledge deficits, with a mean of 49 percent in scores on the Cancer Pain Knowledge Questionnaire. Although 62 percent of the respondents believed cancer patients were commonly undermedicated, 29 percent mistakenly thought maximal analgesic therapy should be saved for those patients who had twelve months or less to live, and 28 percent believed maximal dosages should be reserved for people with a prognosis of less than six weeks. A majority of those who participated were unable to identify a person who could serve as a cancer pain management resource (Sheenan, et al., 1992).

The low response rate to the survey compromises the results of the study, even within the population identified. The instrument presented several ‘opinion’ statements for response; e.g.,

- ‘I feel I have adequate knowledge about managing cancer pain...true/false’
- ‘What percentage of cancer patients do you think suffer from pain at some point during their illness?...20%, 40%, 60%, 80%, 100%’

Readers must question the preferred answers indicated in this tool and the significance of the results to the field of nursing education. Based on the information reported in this article published in *Journal of Pain and Symptom Management*, there is no mention of this instrument’s use in other studies. Researchers did not speak of pilot testing or measures taken to assure validity.

Research shows a deficiency in important content areas in baccalaureate nursing programs in the United States (Ferrell, McGuire, & Donovan, 1993 & Graffam, 1990).

It is essential for the curriculum to include adequate instruction in the areas of pain assessment tools, JCAHO standards, medication and alternative forms of pain management, facts versus myths, common misconceptions, cultural factors, and current research findings.

A study published in 1993 surveyed nursing faculty to determine their knowledge and beliefs about pain. Ferrell, et al., (1993) mailed questionnaires to faculty at fourteen various baccalaureate nursing programs in different areas of the United States. Surveys were sent to 776 full or part-time faculty members at public and private schools. The response rate was 64 percent (n = 498). The Survey of Knowledge and Beliefs Regarding Pain used in this study was tested and shown to have construct and content validity. The Pain Curriculum Survey and the Faculty Characteristics Survey were also used. Results revealed 18 percent of the nursing programs changing pain education within the past year with an increase in content or revised instructional materials. On a scale of zero to ten, with zero signifying no effectiveness and ten equaling very effective, faculty saw their program's pain curriculum as moderate for preparing students (mean = 5.7). When asked how successful they felt about caring for others in pain and facilitating students' clinical learning experiences related to pain management, faculty reported a mean score of 6.26 (SD = 2.39). Teachers were least knowledgeable in the area of medication actions with only 43 percent answering pharmacology questions correctly. The areas of best outcomes included assessment by self-report, importance of continuous assessments, and non-drug comfort measures. The least amount of time in the curriculum was spent teaching beliefs and misconceptions about pain management (1.4 hours), whereas

analgesics (3.9 hours), nonpharmacological interventions (3.5 hours), and assessments (3.2 hours) were the content areas most emphasized.

The researchers purposefully included both private and public programs from the North Atlantic, Midwest, South, and Western United States in the study population. Instruments had been used previously and procedures allowed for a large sample size. The major limitation was that faculty who served as site investigators for gathering data to complete surveys were known to be interested in the topic. Researchers note, “Thus, it must be noted that the sample may overrepresent schools with at least some interest in pain” (Ferrell, et al., 1993, p. 82).

Graffam (1990) surveyed a random sample of 390 accredited baccalaureate nursing programs with a valid questionnaire designed to elicit information about pain content in the curriculum. Of 305 usable questionnaires, 81 percent reported having formal instruction on pain either in the classroom or in clinical conferences. Several of the programs said they did not teach this content formally (n = 57) but reported discussing pain management with students informally on an as needed basis. Eight percent (8%) of the programs surveyed taught a separate course on pain while the others ranged from 2 hours (6%) to more than 15 hours (4%) of instruction in the entire curriculum (mode = 4). The topics taught most frequently by the surveyed programs were assessment techniques (92%), the origin of acute (81%) and chronic (87%) pain, and analgesic therapy (84%). Learning experiences with patients took place in the hospital most often (96%), as well as in the home (77%), and in pain clinics (10%). Eighty-two percent (82%) of the schools reported not having a pain expert on the faculty. “This survey suggests that many baccalaureate students in programs accredited by the

National League for Nursing may have an inadequate knowledge and skills base for dealing with this common and complex problem” (Graffam, 1990, p. 22).

The high response rate and large sample size substantiated the findings of this study. Since this study was published in 1990, it would be interesting to conduct a replication study to see if there are still 19 percent of BSN nursing programs not including pain management in their curriculum.

Sigsby (2001) suggested facilitating learning experiences for pain management through perioperative clinical experiences. Nursing students were randomly assigned to clinical experiences for two semesters. From a population of 147 juniors, 49 students (33%) participated in a perioperative rotation including the holding area prior to surgery, operating room, and recovery. Students spent 16 hours per week assigned to patients with various types of surgical procedures. Data were collected in clinical conferences where students were asked one open-ended question: ‘What was your overriding impression of learning in the perioperative rotation?’ Findings showed enhanced student understanding of pain by the end of the second semester. The three most prevalent themes were ‘learning about interdisciplinary professionals’, ‘anatomy and physiology’, and ‘patients in pain’. One student commented,

“When you see the person in pre-op, looking like any other person, with their family around them ...when you can talk to them and try to allay their concerns...then, later, you see them moaning with their eyes closed and speaking through clenched teeth. It makes you really see how important it is to treat pain at the right time with the right amount of medication” (Sigsby, 2001, p. 23).

The researcher has made a case for students learning about pain management during a rotation through the perioperative area; however, she has not fully addressed the

extent of knowledge students gained in other content areas. It would be important for a nurse educator to evaluate the global knowledge a student might acquire before considering student placement in a specialty area for two entire semesters. The researcher identified as a limitation of the study the lack of a comparison group composed of students in other clinical rotations.

Although the core nursing curriculum components are established and published in the literature, research shows a great deal of variance in the amount of time devoted to pain, pain assessment, and its management within nursing curricula of different programs (Zalon, 1995). Zalon (1995) randomly selected 200 associate degree programs (ADN) and 200 baccalaureate degree programs (BSN) from a list of N.L.N. accredited programs. Eighty percent (80%) of the programs agreed to participate in the study (n = 177 ADN and 174 BSN programs). A 21-item survey instrument was designed by the researcher to measure pain and pain management concepts in the curriculum. A few revisions were made after it was pilot tested and critiqued for face validity by a panel of experts. Ninety-two percent (92%) of the ADN programs and 96 percent of the BSN programs reported teaching students to use a numerical rating scale (NRS) for pain assessment although a lower percentage used the NRS in the clinical setting. There was no significant difference between the two groups in time allotted in the curriculum for pain content. The associate degree programs surveyed indicated an average of 8.4 hours while the baccalaureate programs reported a mean of 9.6 hours. Faculty participants felt that the time allotted for pain management in the curriculum was less than adequate; however, they reported satisfaction in the students' preparation in the clinical area. "Competency in pain management is not solely a function of content mastery. Therefore, education

about pain management should include the critical analysis of issues and the development of values” (Zalon, 1995, p. 267).

The literature supports nursing programs revisiting curricular content and teaching methods for pain and collectively deciding on minimal standards for knowledge in this area. According to Graffam (1990), programs should choose content congruent with the departmental philosophy and then integrate this content throughout the curriculum in formal class objectives and clinical activities. High percentages of programs indicating their student’s exposure to and instruction with numerical rating scales for pain assessment provides hope for the future as more graduates enter the workforce with this knowledge (Zalon, 1995).

It is essential for schools of nursing to include common misconceptions about pain in the curriculum and dispel the myths that students may already have on admission or encounter in the future. In a study of 14 baccalaureate programs in the U.S., data revealed that ‘current research findings’ and ‘beliefs and misconceptions’ had the fewest number of hours devoted to them in the curriculum (Ferrell, McGuire, & Donovan, 1993, p. 86).

Summary of Findings and Relevance to the Study

The International Association for the Study of Pain has identified core components for curriculum; however, nursing programs differ in the number of hours allotted for pain content in the curriculum as well as the teaching methods used. The core component of the current research study is education of nursing students. Assessing students’ beliefs and misconceptions upon entry into the program and teaching students

that pain is a subjective experience to be accepted and respected, are major implications for nurse educators to take from this report.

Instruments for Measuring Nurses' Knowledge and Attitudes

A case vignette instrument developed by Margo McCaffery and Betty Ferrell was chosen as the major instrument for the current research study. After reviewing the available instruments addressing knowledge and attitudes about pain assessment and management, the 'Andrew-Robert' case vignette was chosen because it yielded information necessary for answering the research questions. Other instruments may be more appropriate in different populations, but with a student population, the vignette was ideal because of its ability to elicit application level thinking, rather than rote memory knowledge. The case vignette was simplistic in its design; yet, it produced rich data for analysis.

Similarities and Differences of Available Instruments

Listed below are five instruments for assessing knowledge and attitudes about pain assessment that have been identified in the literature, including the one used in the current study:

- Nurses' Knowledge and Attitudes Survey
Developed by Betty Ferrell & C. Leek
- Clinical Decision Making Survey
Developed by Margo McCaffery & Betty Ferrell
- Post-operative Pain Management Needs Assessment
Developed by Marie Whedon, RN, MS, AOCN
- Patient Vital Signs Vignettes
Developed by Margo McCaffery & Betty Ferrell
- Patient Behavior Vignettes

Developed by Margo McCaffery & Betty Ferrell

Each of the five instruments has the purpose of detecting personal bias and determining knowledge level. They all strive to make nurses aware of their actions. Critical thinking involves careful reflection about the reasons we do the things we do. It is important for nurses to not continue to practice under false assumptions, but rather, think critically about their assessments and interventions to assure quality of care. Descriptive data can be obtained from any of the five tools identified. All of the instruments are guided by the theory that patients are experts about their own pain intensity, and also, that the nurse should respond based on their verbal report. Margo McCaffery's work is evident in all five of the instruments. Differences lie in the methods used to measure knowledge, attitude, and misconceptions. For the novice nurse or student, case vignettes, in particular, are an excellent means for data collection and take little time to respond to.

Advantages and Disadvantages of Vignette Instruments

The Andrew-Robert case vignette asks respondents to make decisions about pain and medication administration in regard to the information presented in the scenario. "Vignettes are short compact descriptions which exemplify the concept under consideration" (Flaskerud, 1979). One benefit of using case vignettes in research is that all participants are responding to the same information. The details provided in the scenario are standardized. Vignettes take little time to respond to and focus on decision-making abilities (Corley & Seilig, 1992). "Perhaps the most interesting aspect of the vignette technique in survey research is that it makes possible an analysis of the effects on people's judgments by systematically varying the characteristics used in the situation

description” (Alexander & Becker, 1978). These tools go beyond the knowledge level of remembering previously learned material or even comprehension abilities such as explaining and summarizing facts. Application, or the ability to use learned information in a new situation, is required when responding to these cases. Application is the third level of Benjamin Bloom’s Taxonomy. Since the six levels are arranged by degree of difficulty, the first must be mastered before the next can be accomplished (Bloom, Mesia, & Krathwohl, 1964). Using Bloom’s categories, one could assert that a nurse must first have knowledge and comprehension in order to correctly respond to the vignettes that require application.

One disadvantage of the vignette instrument is that the rationale for participants’ responses is not known. From this instrument, a researcher can determine the percentage of nurses who correctly responded; however, it is not known ‘why’ they chose to record the pain level or ‘why’ they chose to give the medication dosage. For this reason, the researcher added two questions to the original instrument asking students to provide the reasons for their actions.

Another negative aspect is that vignettes, in general, are limited in the amount of information provided. In a true clinical situation, the nurse is able to gather more information through interviewing the patient, obtaining a complete health history, discussing interventions with co-workers, and have various options available for treatment including non-drug interventions.

Validity and Application of Numeric Rating Scales

Not only is it important to address the validity of the specific instrument used in this study to determine knowledge and attitudes about patients in pain (as addressed in

chapter 3); but it is also necessary to examine more broadly the validity of the numeric pain intensity rating scale. The zero to ten scale is embedded in the Andrew-Robert survey and crucial to the results of the current study.

In an extensive study of the validity and reliability of pain measures in adults with cancer, Jensen (2003) analyzed 164 articles that provided psychometric data. The pain intensity scales, including the 0-10 numeric rating scale, used in the studies were all shown to be valid and reliable, although some were more user-friendly and easy to understand than others. The author found that numeric rating scales are used less often in research than visual analog scales. In this study, the most common inconsistencies with numeric rating scales were associated with mentally impaired patients, the elderly, and those taking large doses of opioids before using the scale (Jensen, 2003).

Body temperature, heart rate, respiratory rate, and blood pressure are referred to as vital signs. These four assessments are performed routinely by healthcare personnel to determine the health status of patients. The Joint Commission on Accreditation of Healthcare Organizations suggests making pain assessment the fifth 'vital sign' to facilitate consistent screening and management of pain (Lynch, 2001). The Agency for Health Care Policy and Research also recommends the use of a 0-10 numeric rating scale and a verbal descriptor scale in healthcare settings with adults in pain and when managing cancer pain (AHCPR, 1994, 1992).

"Although no one scale is suitable for all patients, the authors, with many years of clinical experience using the 0-10 scale, recommend universal adoption of such a scale for clinical assessment of pain intensity in adults capable of responding to simple queries" (Dalton & McNaull, 1998). In order to improve reliability and validity of

patient responses when pain scales are used, McCaffery and Pasero (2001) emphasize the importance of teaching the patient how to use the scale and also ensuring that the same scale is used with each assessment, avoiding the mistake of switching from a 0-5 scale to a 0-100 scale, and then back to the 0-10 scale.

Krohn (2002) reported that nurse practitioners use a 0-10 numeric rating scale most frequently when assessing pain in their patients.

Comparison of the Numeric Rating Scale with Other Pain Rating Scales

Verbal descriptor scales (VDS) use adjectives at equal intervals along a continuum for describing pain intensity. When comparing the VDS to the numerical rating scale (NRS), Baillie (1993) stated, “Depending on the number of points marked, the scale [NRS] allows greater sensitivity and avoids the difficulties of misinterpretation that occur when descriptive words are used along the scale” (p. 27).

Paice and Cohen (1997) described the 0-10 numeric rating scale as a valid measure of pain intensity. The researchers stated,

“Over time, clinicians tend to re-use the simplest tools. The VAS requires a card for each assessment, the SDS requires knowledge of English adjectives, but the NRS requires neither. As a clinical tool for consistent use, the NRS is the logical choice” (Paice, et al., 1997, p. 92).

This study also showed that most of the subjects in the convenience sample preferred to use a NRS for measuring pain when given the choice between the NRS (50%), Simple Descriptor Scale, also known as the Verbal Descriptor Scale or Verbal Rating Scale (38%), and the Visual Analog Scale (12%).

Summary of the Findings and Relevance to the Current Study

Many instruments have been used in nursing research for eliciting information about pain knowledge and attitudes. There are similarities among the five instruments discussed, as well as advantages and disadvantages for each. The decision to use one instrument over another depends on the purpose of the study and the population. For the purpose of the current study, the 'Patient Behavioral Vignette' is the best-suited tool for data collection.

Chapter II Summary

The topic of pain is a broad concept with many facets to consider. A great deal of research has been conducted on pain assessment and treatment modalities, including alternative therapies. For the purposes of the current study, the scope has been narrowed to fill a gap in the literature. Although research has clearly suggested that inadequate knowledge and improper attitudes inhibit effective pain management, an overriding number of populations in those studies have included practicing nurses only.

The avenue of pain assessment and management education for students in pre-licensure nursing programs in the literature is minuscule. For studies that have included nursing students, sample sizes have been small and results have not been far-reaching.

No study to date has been designed to investigate the progression of students' knowledge and attitudes as they advance in the curriculum. The current study included a substantive number of junior and senior nursing students in the sample and compared two groups at different points in the program to determine efficacy of the curriculum and instructional methods.

Chapter Three

METHODS AND PROCEDURES

Purpose of the Study

The purpose of the study was to examine nursing students' assessment ratings and treatment choices for patients experiencing pain, using a case vignette instrument. The findings filled a gap in the literature and provided implications for nursing education. The study replicated some aspects of the design of Chuk's 2002 study with senior students in Hong Kong, but went beyond its scope to compare nursing students at two different points in the curriculum.

Research Design

Specific research questions addressed in this study were as follows:

1. To what extent do nursing students correctly rate patients' verbal reports of pain intensity in two case vignettes?
 - 1.a. How do ratings of pain in two case vignettes differ according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences?
2. To what extent do students, who correctly rate a patient's stated pain intensity, also correctly administer the recommended dosage of analgesic under the conditions provided in the case vignette?
3. What rationales do students identify for their correct and incorrect ratings of pain intensity and medication administration in the case vignettes?

This descriptive study used a survey approach with instruments composed of two case vignettes and a demographic questionnaire. The case vignettes included two multiple

choice and two open-ended questions and the demographic questionnaire provided additional information about participants. Both instruments were used to gather qualitative and quantitative data.

In many instances, quantitative research alone is sufficient for addressing issues where a breadth of information is desired. However, when addressing knowledge, attitudes, and beliefs, it is difficult to elicit feelings without using the words of participants. Numbers do not provide the depth needed to get inside the students' minds to find out their ways of knowing and believing. This was the rationale for adding questions B. and D. to the original instrument.

Instrumentation

The major instrument used in this study was a 'Patient Behavior Case Vignette' called the 'Andrew-Robert Survey' developed by Margo McCaffery and Betty Ferrell. A demographic questionnaire, developed by the researcher, supplied additional information about the participants. Responses to these instruments provided data necessary to answer research questions.

In the Andrew-Robert survey, participants were asked to respond to two patient scenarios and answer four questions after each case was presented (See Appendix C). The questions asked the participant to A.) rate the patient's pain intensity level on a 0-10 numerical rating scale; B.) provide a rationale for recording this pain level; C.) select a dosage of pain medication from a range of choices; and D.) provide a rationale for the dosage of medication chosen.

In an effort to obtain narrative statements to answer research question #3, the researcher added questions B. and D. to the original instrument. The following two

questions were posed: ‘What influenced your decision and led you to record this intensity level’ and ‘What influenced your decision and led you to choose this dosage of pain medication.’ Because these questions were not a part of the original instrument, the researcher requested feedback from six informed nursing faculty members at Tennessee Wesleyan College prior to data collection regarding the validity of the questions and their ability to elicit responses that answer research question #3. In addition, the same six nursing faculty were asked to validate the accuracy of responses listed by the researcher as ‘correct and incorrect student rationales’ and evaluate ‘anticipated student rationale themes’ for validity. All six educators were in agreement that questions B. and D. were appropriate additions to the tool in an effort to answer research question #3. The nursing faculty concurred that the ‘anticipated student rationales’ and narrative statements listed by the researcher as ‘correct and incorrect’ were accurate.

The Andrew-Robert survey provided data necessary to each of the research questions. Question A from the instrument stated, ‘On the patient’s record you must mark his pain on the scale below. Circle the number that represents your assessment of (Andrew’s/Robert’s) pain.’ Results from this question provided data to answer research questions #1, #1.a., and a portion of #2 and #3. Question B and D, as referred to above, provided qualitative data for answering research question #3. Question C asked respondents to check the action they would take in regard to treatment. These data were linked with the results from Question A to determine if students who correctly recorded pain intensity also correctly administered the recommended dosage of medication. Question C supplied data for answering research question #2 and a portion of question #3.

A demographic questionnaire was developed by the researcher and attached to the case vignette instrument (See Appendix D). The questionnaire not only classified students by school, program level, gender, ethnicity, and age, but also elicited information about previous education in pain assessment, personal pain experiences, and caring for others with pain. This information assisted the researcher in disaggregating results for research question #1.a. Validity of this demographic questionnaire and relevance to the study were addressed by asking six informed nursing faculty at Tennessee Wesleyan College to review the questions and provide feedback to the researcher before data collection. All six concurred that the questions on the demographic questionnaire were valid and appropriate. Table 3-1 illustrates the connections between research questions and questions posed in the vignettes and demographic questionnaire.

The case vignette instrument was selected based on its relevance to the research questions and its wide use in other studies. “Use of vignettes in a measuring instrument is a valid and desirable method of eliciting responses toward broad concepts” (Flaskerud, 1979). The demographic questionnaire was developed after reading several related articles pertaining to pain assessment. Personal traits of nurses are commonly referred to in the literature and often make a difference in the way they respond to pain (Allcock, 1996).

Table 3-1: Comparison of Research Questions and Survey Questions

Research Questions	Related Survey Questions
RQ1: To what extent do nursing students correctly rate patients' verbal reports of pain intensity in two case vignettes?	Case Vignette: Patient A, Question A Case Vignette: Patient B, Question A
RQ1.A.: How do ratings of pain in two case vignettes differ according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences?	Case Vignette: Patient A, Question A Case Vignette: Patient B, Question A Demographic Questionnaire: Q. 1-8
RQ2: To what extent do students, who correctly rate a patient's stated pain intensity, also correctly administer the recommended dosage of analgesic under the conditions provided in the case vignette?	Case Vignette: Patient A, Questions A & C Case Vignette: Patient B, Questions A & C Demographic Questionnaire: Q. 1
RQ3: What rationales do students identify for their correct and incorrect ratings of pain intensity and medication administration in the case vignettes?	Case Vignette: Patient A, Questions A, B, C, D Case Vignette: Patient B, Questions A, B, C, D

On the City of Hope website, Ferrell and McCaffery stated:

“Validity was first established by a review of the vignette by content experts in pain management. These experts provided feedback regarding the content clarity and affirm that the case is constructed to measure the targeted concept (content validity). Each vignette was then pilot tested in at least 100 subjects. The investigator (McCaffery) used workshop participants to pilot the vignette and allowed for group discussion in which the participants validated the concept measured and any issues regarding wording of the case. These pilot tests were a valuable step in formulating the final case.” (City of Hope, 1998).

On another page of this website, Ferrell and McCaffery wrote this about the case vignettes:

“Each of the attached surveys has been derived from established pain management content, generally extracted to represent the content from the Agency for Health Care Policy and Research (AHCPR) guidelines. This content is also consistent with the guidelines by the World Health Organization (WHO) and the American Pain Society (APS)” (City of Hope, 1998).

Permission to use and reproduce the vignette was granted by Margo McCaffery and Betty Ferrell. In a letter posted on the City of Hope website, Ferrell and McCaffery write, “You are free to use these [pain surveys] in any way that you desire. You may duplicate these, publish the results, and share them with others, and you do not require any additional permission from us to do so” (City of Hope, 1998). This researcher did, however, contact Margo McCaffery both via telephone and e-mail to be certain this statement was still applicable. In an e-mail message dated January 20, 2003, McCaffery writes, “Dear Crista, Certainly you have my permission to use the Andrew-Robert survey.” Another e-mail dated January 24, 2003 from McCaffery read, “Dear Crista, I too am excited about your project. I think your research design is great...I think it is vital to find out what biases students come to us with and whether they retain what we teach.”

Population and Sample

The population included all Junior and Senior nursing students at Tennessee Wesleyan College-Fort Sanders Nursing and The University of Tennessee (n = 284 students). The sample consisted of all those who were present and willing to participate on the day of data collection (n = 270 students; 95% of the population). Junior and Senior students were selected because these are the years in which nursing students begin their upper division nursing courses after having completed two years of general education requirements and prerequisites.

At TWC-FSN, thirty-eight juniors were present on the day of data collection and each person agreed to respond to a survey. Twenty-nine seniors were present and completed the instrument; however, one participant was a registered nurse in the RN-BSN track. As listed in the delimitations of the study, the sample was limited to basic students, and responses from registered nurses returning to school for a BSN were not to be included. Twenty-eight senior participants from TWC-FSN remained.

At The University of Tennessee, 106 junior students were present and chose to participate; however, two respondents who completed surveys failed to sign the informed consent form, so their results were not included. This left 104 usable junior surveys at U.T. One hundred one (101) seniors were present during data collection; however, one chose not to participate as indicated by a large "X" drawn on the front of the blank survey. This left 100 U.T. seniors who completed the instrument.

The total number of participants consisted of 142 junior nursing students and 128 senior nursing students for a total sample size of 270. The current study is not a pre/post-

test design, but rather, a sample consisting of two different groups of students. Table 3-2 displays the makeup of the sample.

Data Collection

Data were collected in November 2003. This timeframe was selected because it was the first full semester of nursing classes for junior students and just prior to formal classroom instruction on pain management in the ‘Foundations of Nursing’ course. The senior students were one semester away from graduation and had first encountered pain management content in the curriculum approximately one year prior to data collection. Pain management concepts were presented formally in the classroom by nursing faculty, as well as informally through various clinical experiences with patients experiencing pain. Pain management is also integrated in the curriculum of other courses throughout the program. Table 3-3 shows the exact dates of data collection at each school of nursing.

Table 3-2: Number of Research Participants in Sample

	Juniors	Seniors	Total
TWC-FSN	38	28	66
U.T.	104	100	204
Total	142	128	Total N = 270

Table 3-3: Dates of Data Collection at Schools of Nursing

	Juniors	Seniors
TWC-FSN	November 10, 2003	November 10, 2003
U.T.	November 17, 2003	November 17, 2003 & November 24, 2003

The researcher administered the instruments in student classrooms at The University of Tennessee and Tennessee Wesleyan College-Fort Sanders Nursing. To prevent the possibility of social desirability response bias, another faculty member at TWC-FSN administered the instruments to the seniors at that school, since the researcher taught the pain content in their junior year. All students were invited to participate. Students were assured that confidentiality would be maintained in their responses.

Everyone was asked to read and sign an informed consent form before participating (See Appendix B). The researcher explained the purpose of the study and asked students to be completely honest in their answers. Students were advised not to seek guidance from others sitting around them. It was explained that there would be no penalty for refusing to participate. If a student chose not to participate, s/he was instructed to draw a large "X" on the front cover and return the form blank. Students took approximately 10 minutes to complete the case vignettes and the demographic information. Extra time was allowed when needed. To overcome order effect, approximately half of the students randomly received the instrument with Patient A (typical behavioral manifestations) listed first and the other half received a form with Patient B (atypical behavioral manifestations) listed first. As students came forward to

hand in the surveys, the researcher offered candy as a gesture of reciprocity. Since the dates of data collection, the researcher has been the only person to view the results.

Data Analysis

In this study, most of the data were analyzed based on the student's program level. At the time of data collection, junior students at either school had not attended their classroom lecture on pain management, whereas seniors had received such instruction, approximately one year before. This analysis was considered important because results have implications for nursing education based on the comparison of data from the two groups. Data collected from two separate groups at different points in the program (one year apart) can provide information about the effectiveness of the programs' curricula and the adequacy of instruction.

Analysis for Research Question #1

Research question #1 was answered descriptively by analyzing students' reports of pain intensity in two different patient scenarios using Question A of the Andrew-Robert survey. In one vignette, the patient showed typical behavioral manifestations (lying quietly, grimacing with movement) and rated his pain as '8' on a 0-10 scale. The patient in the other vignette showed atypical behavioral manifestations (smiling, talking and joking with visitor) and rated his pain as '8' on a 0-10 scale. The desired response of students who assessed pain intensity was to accept the verbal reports given by the patient and document it as such, without making judgments based on behavior. Patients are encouraged to use humor as a means of distraction; therefore, smiling, joking, or laughing with a visitor would not constitute documenting a lower pain rating. Moreover, some cultures are taught to mask their pain as a sign of strength (Ferrell, 1995).

The results from the total sample of students were analyzed as a whole. Recording '8' on the pain scale was the only correct response; all other responses were incorrect. Correct responses were designated by the letter 'C' and incorrect responses were designated by the letter 'I.' Numbers and percentages were calculated to compare student ratings of the two patient scenarios and to show the extent to which students correctly recorded verbal reports of pain.

Analysis for Research Question 1.a.

For research question 1.a., the accuracy of pain assessment for the two vignettes was disaggregated for nine subcategories of the entire respondent group including: 1. Junior or Senior program level; 2. UT or TWC Nursing Program; 3. Gender; 4. Ethnicity; 5. Age; 6. Prior education/training; 7. Personal experience with moderate or severe pain; 8. Caring for others in moderate or severe pain; 9. Prior exposure to the instrument. Responses provided on the demographic questionnaire supplied the information necessary to subcategorize the students. Descriptive data were listed in tables with numbers and percentages calculated to compare differences.

Prior to data collection, it was anticipated that seniors, as opposed to the juniors, would have higher percentages of correct responses because they were further along in the curriculum and had more instruction, both in the classroom and clinical setting. At that point in the program (November, before graduating in May,) it was hoped that senior students would not rate the patients' pain intensity differently based on behavior, but rather, accept and respect their subjective reports. It was anticipated that junior students, on the other hand, might be swayed by behavioral manifestations because of their limited knowledge, possible misconceptions, and early point in the curriculum.

Analysis for Research Question #2

Research Question #2 was analyzed by looking at students' assessment ratings (Question A) and their administration of medication (Question C) for both patient scenarios of the case vignette (typical and atypical behavioral manifestations). Students who correctly recorded pain intensity were listed to see the extent to which they also administered the correct dosage of pain medication under the conditions provided in the vignette. Results were first analyzed by looking at the group as a whole. Then results were arranged to see differences among juniors and seniors at the two schools of nursing. When correct dosages of pain medication were not administered, narrative statements elicited by Questions B and D were examined to determine reasons for the incorrect responses.

The letter 'C' represented the only correct assessment response, which was '8' on the 0-10 scale. If any other number was recorded, the letter 'I' was used to denote an incorrect recording of the patient's stated pain level. The letter 'C' also represented the only correct medication dosage, which was '3 mg Morphine.' The letter 'I' for incorrect response designated any other treatment response.

Two possible outcomes were considered: 1.) correct pain intensity rating with correct medication dosage; and 2.) correct pain intensity rating with incorrect medication dosage. Incorrect pain intensity ratings with either correct or incorrect dosages of medication were not considered in this question because students had to first properly assess before their interventions were considered. Assessment is the first phase of the nursing process, followed by diagnosis, planning, implementation, and evaluation (Alfaro, 1990). Alfaro states, "Your ability to identify cues and to make an inference

about their significance will depend on your assessment skills, knowledge of theory, and clinical expertise” (p. 49).

Analysis for Research Question #3

Findings for research Question #3 resulted from analysis of written rationales provided by students in Questions B and D of the vignette (for both patient scenarios) that asked: ‘What influenced your decision and led you to record this intensity level?’ and ‘What influenced your decision and led you to administer this dosage of medication?’ Students’ responses to question A on both vignettes were referenced when answering this question. The purpose of this question was to identify student’s rationales for the assessment ratings they gave and the medication dosages they chose. Themes identified in the student rationales could be important for nursing educators because they serve as either an avenue to expand upon appropriate reasoning, or a means to correct misconceptions.

Chapter Four

FINDINGS

Introduction

In November 2003, the researcher collected data from junior and senior nursing students at Tennessee Wesleyan College-Fort Sanders Nursing Department and the University of Tennessee. The purpose of the study was to examine nursing students' knowledge and attitudes about pain assessment and treatment. Two-hundred seventy (270) students made up the sample representing 95 percent of the identified population. Two-hundred seventy four (274) surveys were disseminated; however, four surveys could not be included in the sample for the following reasons. One participant, who was already a registered nurse, had returned to school to obtain a bachelor's degree. Only basic students were considered in the current study; therefore, this survey was discarded. Two respondents completed the survey but failed to sign the attached informed consent form, so their responses were not included in the results. One student chose not to participate, as indicated by returning the surveys blank and drawing a large 'X' on the cover sheet.

A 'Patient Behavior Case Vignette' developed by Margo McCaffery and Betty Ferrell called the 'Andrew-Robert Survey' (Appendix C) and a demographic survey developed by the researcher (Appendix D) served as the instruments for the current study. Within the case vignette, there were two hypothetical patient scenarios. Both patients were the same age and reported symptoms of pain one day following abdominal surgery. Each patient had the same vital signs and stated the same pain intensity on a 0-10 numerical rating scale. The only difference between the two patients was their behavior.

Robert was the hypothetical patient displaying typical behavioral manifestations of pain including grimacing upon movement. Andrew was another hypothetical patient showing atypical behavioral manifestations of pain such as smiling, talking, and joking with a visitor. The students were asked to rate their assessments of the patients' pain intensity on a 0-10 scale, and then provide a written rationale for their decision to record this rating. Next, the vignettes prompted students to consider treatment choices for these two patients. Again, the scenario was identical for both patients. A review of previous dosages of morphine was provided as well as the current physician order for this analgesic as needed. Students were asked to place a checkmark beside the dosage of morphine they would administer, ranging from 'none at this time' to '3mg now,' and then describe what influenced their decision to choose this dosage of pain medication.

For both hypothetical patients in the case vignettes, the correct pain rating was '8' because the patient's subjective report is considered to be the most accurate indicator of pain intensity. Based on the information provided, 3mg of morphine was the correct dosage of medication for both patients because 2mg had previously been ineffective in reducing the pain to an acceptable level, the vital signs were stable, and no side effects were noted. Findings have been organized in a manner to answer the study's four research questions.

Research Question #1

Research Question #1: To what extent do nursing students correctly rate patients' verbal reports of pain intensity in two case vignettes?

The sample as a whole was analyzed in terms of the two patient scenarios in the case vignette. If a student correctly rated the patient's pain intensity as '8' on the 0-10

numerical rating scale, a 'C' signifying 'correct' was noted. If the student incorrectly rated the pain intensity as something other than '8' on the 0-10 scale, an 'I' signifying 'incorrect' was noted. All 270 students in the sample responded to this question.

Findings for 'Patient A' (Robert), or the patient with typical behavioral manifestations of pain, are reported first. Of 270 junior and senior nursing students, 236 students (87.41%) correctly rated Robert's pain intensity. Stated another way, only 34 of 270 students (12.59%) incorrectly rated Robert's pain level.

Findings for 'Patient B' (Andrew), or the patient with atypical behavioral manifestations of pain were quite different. From the same sample, 188 of the 270 respondents (69.63%) correctly recorded Andrew's pain. Eighty-two students (30.37%) did not correctly rate the patient's subjective report of pain.

Upon further analysis, 33 of the 34 students (97.06%) who incorrectly rated Robert's pain, also incorrectly rated Andrew's pain. Of the total sample, 33 students (12%) incorrectly rated both patients' pain intensities in the case vignette. See Table 4-1 for a tabulation of the findings.

Research Question #1.a.

Research Question 1.a.: How do ratings of pain in two case vignettes differ according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences?

The pain assessment results were also analyzed according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences.

Table 4-1: Research Question #1/ Sample as a Whole

	Patient A or ‘Robert’	Patient B or ‘Andrew’
Correct Assessment	236/270 (87.41%)	188/270 (69.63%)
Incorrect Assessment	34/270 (12.59%)	82/270 (30.37%)

School of Nursing

Two schools of nursing were represented in the sample. Findings were organized to compare pain intensity ratings for the two patient scenarios from students who attend Tennessee Wesleyan College and the University of Tennessee. All 270 students in the sample responded to this question.

Tennessee Wesleyan College-Fort Sanders Nursing

From the sample of students attending Tennessee Wesleyan College-Fort Sanders Nursing program (n = 66), 59 correctly rated the pain intensity for ‘Patient A’ (Robert). This number equates to 89.39% of the TWC-FSN students. However, 53 of the 66 TWC-FSN students (80.30%) correctly recorded Andrew’s pain intensity. Stated another way, 10.61% of the TWC-FSN students incorrectly recorded Robert’s pain, while 19.70% incorrectly recorded Andrew’s pain.

The University of Tennessee

From the sample of students attending The University of Tennessee’s nursing program (n = 204), 177 correctly rated Robert’s pain intensity (86.76%). One-hundred thirty five (135) UT students (66.18%) correctly rated Andrew’s pain on the numeric rating scale. This left 13.24 percent of UT nursing students who incorrectly rated

Robert's pain and 33.82 percent who incorrectly rated Andrew's pain. See Table 4-2 for a tabulation of the findings.

School of Nursing (Senior students only)

From the sample of senior students attending TWC-FSN (n = 28), 27 students (96.43%) correctly rated pain intensity for Robert and 26 students (92.86%) correctly rated pain intensity for Andrew. From the sample of senior students attending UT nursing program (n=100), 87 students (87%) correctly rated pain intensity for Robert and 81 students (81%) correctly rated pain intensity for Andrew. See Table 4-3 for a tabulation of the findings.

Program Level

Student ratings for the two patient scenarios were disaggregated to see how ratings differed according to program level. Responses of junior students and senior students from the whole group were analyzed separately.

Table 4-2: Research Question # 1. a./ School of Nursing

	TWC-FSN	UT	TWC-FSN	UT
	Robert	Robert	Andrew	Andrew
Correct Assessment	59/66 (89.39%)	177/204 (86.76%)	53/66 (80.30%)	135/204 (66.18%)
Incorrect Assessment	7/66 (10.61%)	27/204 (13.24%)	13/66 (19.70%)	69/204 (33.82%)

Table 4-3: Research Question #1. a./School of Nursing (Seniors Only)

	TWC-FSN Senior	UT Senior	TWC-FSN Senior	UT Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	27/28 (96.43%)	87/100 (87%)	26/28 (92.86%)	81/100 (81%)
Incorrect Assessment	1/28 (3.57%)	13/100 (13%)	2/28 (7.14%)	19/100 (19%)

Junior Nursing Students

Findings included 142 junior student responses. One-hundred twenty two (122) of those juniors correctly rated Robert's pain intensity (85.92%). However, only 81 junior students correctly rated Andrew's pain intensity (57.04%). Twenty (20) junior students (14.08%) incorrectly rated the pain intensity for the patient with typical signs of pain; whereas, 61 juniors (42.96%) incorrectly rated pain for the patient who smiled and joked with his visitor.

Senior Nursing Students

Findings included 128 senior student responses. In response to Robert's vignette, 114 seniors correctly rated his pain intensity as '8' (89.06%). One-hundred seven (n = 107) seniors correctly rated Andrew's pain (83.59%). Incorrect ratings of pain were documented by 14 seniors for Robert (10.94%); while 21 seniors incorrectly rated Andrew's pain (16.41%). See Table 4-4 for a tabulation of the findings.

Program Level (By School of Nursing)

Data were also analyzed by program level within each of the two schools of nursing. See Table 4-5 for a tabulation of the findings.

Table 4-4: Research Question # 1. a./ Program Level

	Juniors	Seniors	Juniors	Seniors
	Robert	Robert	Andrew	Andrew
Correct Assessment	122/142 (85.92%)	114/128 (89.06%)	81/142 (57.04%)	107/128 (83.59%)
Incorrect Assessment	20/142 (14.08%)	14/128 (10.94%)	61/142 (42.96%)	21/128 (16.41%)

Table 4-5: Research Question # 1. a./ Program Level (By School of Nursing)

	Juniors	Juniors	Juniors	Juniors
	TWC-FSN	UT	TWC-FSN	UT
	Robert	Robert	Andrew	Andrew
Correct Assessment	32/38 (84.21%)	90/104 (86.54%)	27/38 (71.05%)	54/104 (51.92%)
Incorrect Assessment	6/38 (15.79%)	14/104 (13.46%)	11/38 (28.95%)	50/104 (48.08%)
	Seniors	Seniors	Seniors	Seniors
	TWC-FSN	UT	TWC-FSN	UT
	Robert	Robert	Andrew	Andrew
Correct Assessment	27/28 (96.43%)	87/100 (87%)	26/28 (92.86%)	81/100 (81%)
Incorrect Assessment	1/28 (3.57%)	13/100 (13%)	2/28 (7.14%)	19/100 (19%)

Gender

Participants included 30 male students and 240 female students from the total sample (n = 270). Results were categorized by gender to show similarities or differences between the two groups.

Male Students

Twenty-six (n = 26) of the thirty male students correctly rated Robert's pain intensity (86.67%). In Andrew's case vignette, 21 out of 30 male students (70%) correctly rated the pain intensity. Four male nursing students incorrectly rated pain intensity for Robert (13.33%), whereas 9 (30%) incorrectly rated pain intensity for Andrew.

Female Students

The findings showed that 210 of 239 female students correctly rated pain intensity for Robert (87.87%), and 167 of 239 female students correctly rated pain intensity for Andrew (69.87%). Stated differently, 30 female students (12.55%) rejected the subjective report from the patient who appeared to be in pain, whereas 73 female students (30.54%) rejected the subjective report from the patient who did not appear to be in pain. See Table 4-6 for a tabulation of the findings.

Table 4-6: Research Question # 1. a./ Gender

	Females	Males	Females	Males
	Robert	Robert	Andrew	Andrew
Correct Assessment	210/239 (87.87%)	26/30 (86.67%)	167/239 (69.87%)	21/30 (70%)
Incorrect Assessment	30/239 (12.55%)	4/30 (13.33%)	73/239 (30.54%)	9/30 (30%)

Ethnicity

Of the 270 respondents, 248 nursing students indicated that they were ‘Caucasian/White’ on the demographic survey (91.85%). Fourteen respondents reported being African American (5%); three respondents were Asian American (1%); and five participants chose the category of ‘Other.’

Only 8.87 percent of the nursing students were representative of an ethnic group other than Caucasian. Because there was not enough ethnic diversity within the sample, results were not disaggregated based on ethnicity.

Age

From the sample of 270 nursing students, 263 students listed their age. The range of ages for the group as a whole was 20-58, with a mean age of 24.44. The median age was 22.

In the 20-29 age group, 224 nursing students were represented. Twenty-eight students were between the ages of 30 and 39. Nine students were between the ages of 40 and 49 and 2 students were between 50 and 59. Because there was not a sufficient number of students representing the age groups above 40 to disaggregate each group for comparison, the researcher compared students in the following way: Ages 20-29 and ages 30 and up.

Twenty to Twenty-Nine Age Group

From the total sample of 270 student participants, 224 (82.96%) were in the 20-29 age group. From this age group, 197 (87.95%) correctly rated Robert’s pain intensity; whereas, 157 correctly rated Andrew’s pain intensity (70.09%). Twenty-seven nursing students in this group incorrectly documented the pain rating (12.05%) for the patient in

the vignette who displayed typical behaviors of pain. Sixty-seven nursing students in this group incorrectly documented the pain rating (29.91%) for the patient in the vignette who showed atypical pain behaviors.

Thirty and Above Age Group

Within the total sample of 270 nursing students, 39 reported an age of 30 or older (13.44%). In this age group, 37 correctly rated Robert's pain intensity (94.87%); whereas, 29 correctly rated Andrew's pain intensity (74.36%). Behavior was an influential factor for 10 of the 39 students in this age group who incorrectly rated Andrew's pain (25.64%), while only 2 of the 39 incorrectly rated Robert's pain (5.13%). See Table 4-7 for a tabulation of the findings.

Previous Education/Training

On the demographic questionnaire, students were asked to answer 'yes' or 'no' to the following question: 'Prior to nursing school, did you experience formal education or training related to pain assessment and/or treatment of pain?' One student out of the total sample (n = 270) did not respond to this question. Of the 269 students who responded, 33 answered 'yes' to this question and 236 answered 'no.'

Table 4-7: Research Question # 1. a./ Age

	20-29	30 and above	20-29	30 and above
	Robert	Robert	Andrew	Andrew
Correct Assessment	197/224 (87.95%)	37/39 (94.87%)	157/224 (70.09%)	29/39 (74.36%)
Incorrect Assessment	27/224 (12.05%)	2/39 (5.13%)	67/224 (29.91%)	10/39 (25.64%)

Previous Education

From the group of students who reported an educational experience or formal training prior to nursing school (n = 33), 26 students correctly rated Robert's pain intensity (78.79%), while 23 students correctly rated Andrew's pain intensity (69.70%). More than 21 percent (21.21%) of students with previous education/training incorrectly rated pain intensity for the patient showing typical signs of pain, whereas, 30.30% incorrectly rated pain on the numeric scale for the patient expressing atypical behaviors.

No Previous Education

Findings from the group reporting no previous education or training prior to nursing school (n = 236) showed 209 students who correctly rated pain intensity for Robert (88.56%). One-hundred sixty four (164) students from this group correctly rated pain intensity for Andrew (69.49%). Stated another way, 11.04% of students, who reported no prior training in pain management incorrectly rated Robert's pain, while 30.51% incorrectly rated Andrew's pain on the 0-10 scale. See Table 4-8 for a tabulation of the findings.

Previous Education/Training (By Program Level)

Data were also analyzed by program level for those who reported previous education or training and those who did not. See Table 4-9 for a tabulation of the findings.

Table 4-8: Research Question # 1. a./ Previous Education or Training

	Formal Training	No Formal Training	Formal Training	No Formal Training
	Robert	Robert	Andrew	Andrew
Correct Assessment	22/33 (78.79)	209/236 (88.56)	23/33 (69.70%)	164/236 (69.49)
Incorrect Assessment	7/33 (21.21%)	27/236 (11.04%)	10/33 (30.30%)	69/236 (30.51%)

**Table 4-9: Research Question 1. a./Previous Education or Training
(By Program Level)**

	Training Junior	Training Senior	Training Junior	Training Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	15/20 (75%)	11/13 (84.62%)	12/20 (60%)	11/13 (84.62%)
Incorrect Assessment	5/20 (25%)	2/13 (15.38%)	8/20 (40%)	2/13 (15.38%)
	No Training Junior	No Training Senior	No Training Junior	No Training Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	107/121 (88.43%)	103/115 (89.57%)	69/121 (57.02%)	96/115 (83.48%)
Incorrect Assessment	15/121 (12.40%)	12/115 (10.43%)	53/121 (43.80%)	19/115 (16.52%)

Personal Experience with Pain

Question number six on the demographic questionnaire asked students to respond to the following question: ‘Have you personally experienced moderate or severe pain (acute or chronic)?’ One student did not respond to this question, which yielded a total of 269 total responses. Two-hundred six (206) students answered ‘yes’ to the question (76.58%) and 63 students answered ‘no’ (23.42%).

Personal Experience With Pain

Among the 206 students indicating a previous history of moderate or severe pain, 177 students correctly rated pain intensity in the Robert vignette (85.92%) and 138 students correctly rated pain intensity in the Andrew vignette (66.99%). Twenty-nine students who had experienced pain themselves incorrectly rated Robert’s pain (14.08%), and 68 of these students incorrectly rated Andrew’s pain (33.01%).

No Personal Experience With Pain

Results from respondents indicating no personal experience with pain (n = 63) showed that 58 of them (92.06%) correctly rated Robert’s pain, while 49 of these students correctly rated Andrew’s pain (77.78%). Five students having no personal experience with pain incorrectly rated pain for Robert (7.94%); whereas, 14 of these students incorrectly rated pain for Andrew (22.22%). See Table 4-10 for a tabulation of the findings.

Personal Experience with Pain (By Program Level)

Data were also analyzed by program level for those who had personal experience with pain and those who did not. See Table 4-11 for a tabulation of the findings.

Table 4-10: Research Question # 1. a./ Personal Experience With Pain

	Personal Experience	No Personal Experience	Personal Experience	No Personal Experience
	Robert	Robert	Andrew	Andrew
Correct Assessment	177/206 (85.92%)	58/63 (92.06%)	138/206 (66.99%)	49/63 (77.78%)
Incorrect Assessment	29/206 (14.08%)	5/63 (7.94%)	68/206 (33.01%)	14/63 (22.22%)

**Table 4-11: Research Question 1. a./Personal Experience With Pain
(By Program Level)**

	Personal Experience Junior	Personal Experience Senior	Personal Experience Junior	Personal Experience Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	96/114 (84.21%)	81/92 (88.04%)	60/114 (52.63%)	78/92 (84.78%)
Incorrect Assessment	18/114 (15.79%)	11/92 (11.96%)	54/114 (47.37%)	14/92 (15.22%)
	No Personal Experience Junior	No Personal Experience Senior	No Personal Experience Junior	No Personal Experience Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	25/27 (92.59%)	33/36 (91.67%)	20/27 (74.07%)	29/36 (80.56%)
Incorrect Assessment	2/27 (7.41%)	3/36 (8.33%)	7/27 (25.93%)	7/36 (19.44%)

Provided Care for Someone in Pain

The demographic questionnaire elicited information from students about personal experiences. Question #7 asked respondents the following question: ‘Have you personally cared for someone with moderate or severe pain (acute or chronic)?’ One student did not respond to this question. From the 269 total responses, 225 students answered ‘yes’ to this question (83.64%), and 44 students answered ‘no’ (16.36%).

Has Provided Care for Someone Experiencing Pain

From the sample of those who have provided care for others in pain (n = 225), 197 students correctly rated Robert’s pain intensity (87.56%), and 163 students correctly rated Andrew’s pain intensity (72.44%). Twenty-eight students in their group did not accept Robert’s subjective report of pain (12.44%), and 62 students did not accept Andrew’s subjective report of pain (27.56%).

Has Never Provided Care for Someone Experiencing Pain

Forty-four students reported never providing care for another person in pain. Of this group, 38 correctly rated Robert’s pain (86.36%) and 24 correctly rated Andrew’s pain (54.55%). From the 44 students who had no experience providing care for someone in pain, 6 of them incorrectly assessed Robert’s pain (13.64%) and 20 incorrectly assessed Andrew’s pain (45.45%). See Table 4-12 for a tabulation of the findings.

Cared for Someone in Pain (By Program Level)

Data were also analyzed by program level for those who had provided care for others in pain and those who had not. See Table 4-13 for a tabulation of the findings.

Table 4-12: Research Question # 1. a./ Cared For Others In Pain

	Cared for Others in Pain	Has not Cared for Others in Pain	Cared for Others in Pain	Has not Cared for Others in Pain
	Robert	Robert	Andrew	Andrew
Correct Assessment	197/225 (87.56%)	38/44 (86.36%)	163/225 (72.44%)	24/44 (54.55%)
Incorrect Assessment	28/225 (12.44%)	6/44 (13.64%)	62/225 (27.56%)	20/44 (45.45%)

**Table 4-13: Research Question 1. a./Cared For Others In Pain
(By Program Level)**

	Cared for others in pain Junior	Cared for others in pain Senior	Cared for others in pain Junior	Cared for others in pain Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	85/100 (85%)	112/125 (89.60%)	57/100 (57%)	106/125 (84.80%)
Incorrect Assessment	15/100 (15%)	13/125 (10.40%)	43/100 (43%)	19/125 (15.20%)
	Hasn't cared for others in pain Junior	Hasn't cared for others in pain Senior	Hasn't cared for others in pain Junior	Hasn't cared for others in pain Senior
	Robert	Robert	Andrew	Andrew
Correct Assessment	36/41 (87.80%)	2/3 (66.67%)	23/41 (56.10%)	1/3 (33.33%)
Incorrect Assessment	5/41 (12.20%)	1/3 (33.33%)	18/41 (43.90%)	2/3 (66.67%)

Exposure to Instrument

The final question on the demographic questionnaire was written for the purpose of determining how many students had been exposed to the Andrew-Robert Survey. Question #8 on the demographic questionnaire asked, ‘Have you ever seen or completed the attached pain assessment tool (or one similar to it)?’ After administering this instrument to the junior class at TWC-FSN, one student asked the researcher to clarify this question. The uncertainty was embedded in the words ‘pain assessment tool.’ The student did not know if this meant the 0-10 numeric rating scale or the actual case vignette. Until that point, the researcher had not identified the fact that the question was unclear. Most of the surveys at TWC-FSN had already been collected at that point. The researcher took measures to decrease the confusion regarding this question on subsequent data collection dates by thoroughly explaining the purpose of this question. At that point, no data had been collected from students at the University of Tennessee, and all surveys had been distributed at Tennessee Wesleyan College. As the instrument was being distributed to nursing students at UT, the researcher explained that the purpose of this question was to determine if they had ever seen or responded to the Andrew-Robert case vignette (or one similar to it).

Two students from the sample failed to respond to this question, yielding 268 total responses. From the sample of 268 responses, 99 students reported that they had been exposed to the instrument and 169 students had not.

Previous Exposure to the Instrument

Eighty-seven (87) students, of the 99 who responded ‘yes’ to the question, correctly rated Robert’s pain intensity (87.88%); whereas, 74 correctly rated Andrew’s

pain intensity (74.75%). This left 12 students who incorrectly rated Robert's pain (12.12%) and 25 students who incorrectly rated Andrew's pain (25.25%).

No Previous Exposure to the Instrument

Of 169 nursing students who reported that they had not been exposed to the instrument, 147 correctly rated Robert's pain intensity (86.98%) and 112 correctly rated Andrew's pain intensity (66.27%). Stated differently, 22 students (13.02%) incorrectly rated the pain intensity for the patient who displayed typical behaviors associated with pain, and approximately one-third (33.73%; n = 57) incorrectly rated the pain intensity for the patient in the vignette who smiled and joked with his visitors. See Table 4-14 for a tabulation of the findings.

Exposure to Instrument (By program level and school of nursing)

Data were also analyzed by program level and school of nursing for those who had or had not been exposed to the instrument. See Table 4-15 for a tabulation of the findings.

Table 4-14: Research Question # 1. a./ Exposure to Instrument

	Exposed to Instrument	No Exposure to Instrument	Exposed to Instrument	No Exposure to Instrument
	Robert	Robert	Andrew	Andrew
Correct Assessment	87/99 (87.88%)	147/169 (86.98%)	74/99 (74.75%)	112/169 (66.27%)
Incorrect Assessment	12/99 (12.12%)	22/169 (13.02%)	25/99 (25.25%)	57/169 (33.73%)

**Table 4-15: Research Question # 1. a./ Exposure to Instrument
(By Program Level and School of Nursing)**

	Exposure to Instrument Junior TWC-FSN	Exposure to Instrument Senior TWC-FSN	Exposure to Instrument Junior TWC-FSN	Exposure to Instrument Senior TWC-FSN
	Robert	Robert	Andrew	Andrew
Correct Assessment	13/15 (86.67%)	19/19 (100%)	11/15 (73.33%)	18/19 (94.74%)
Incorrect Assessment	2/15 (13.33%)	0/19 (0%)	4/15 (26.67%)	1/19 (5.26%)
	Not Exposed Junior TWC-FSN	Not Exposed Senior TWC-FSN	Not Exposed Junior TWC-FSN	Not Exposed Senior TWC-FSN
	Robert	Robert	Andrew	Andrew
Correct Assessment	19/23 (82.61%)	8/9 (88.89%)	16/23 (69.57%)	8/9 (88.89%)
Incorrect Assessment	4/23 (17.39%)	1/9 (11.11%)	7/23 (30.43%)	1/9 (11.11%)
*****	*****	*****	*****	*****
	Exposure to Instrument Junior UT	Exposure to Instrument Senior UT	Exposure to Instrument Junior UT	Exposure to Instrument Senior UT
	Robert	Robert	Andrew	Andrew
Correct Assessment	19/23 (82.61%)	36/42 (85.71%)	13/23 (56.52%)	32/42 (76.19%)
Incorrect Assessment	4/23 (17.39%)	6/42 (14.29%)	10/23 (43.48%)	10/42 (23.81%)
	Not Exposed Junior UT	Not Exposed Senior UT	Not Exposed Junior UT	Not Exposed Senior UT
	Robert	Robert	Andrew	Andrew
Correct Assessment	70/80 (87.50%)	51/58 (87.93%)	40/80 (50%)	49/58 (84.48%)
Incorrect Assessment	10/80 (12.50%)	7/58 (12.07%)	40/80 (50%)	9/58 (15.52%)

Research Question #2

Research Question #2: To what extent do students, who correctly rate a patient's stated pain intensity, also correctly administer the recommended dosage of analgesic under the conditions provided in the case vignette?

This research question was first analyzed by looking at the sample as a whole. Then, students were disaggregated by program level to compare differences between junior and senior nursing students.

Sample as a Whole

From the total sample (n = 270), 236 students (87.41%) correctly rated pain intensity for 'Patient A' or 'Robert.' Out of 236 correct assessment ratings for Robert, 119 nursing students (50.42%) also administered the correct dosage of medication, which was 3mg. The remaining 117 students (49.58%) responded to the vignette by choosing to administer either the same dose that was only slightly effective before (2mg), half the dose as administered previously (1 mg), or no morphine at all.

One-hundred eighty eight (188) nursing students from the total sample (69.63%) correctly rated 'Patient B' or Andrew's pain intensity. From this group of 188 students, 73 students (38.83%) responded to the vignette by choosing to administer the correct dosage of morphine to Andrew. This left the majority of the group (n = 115; 61.17%) who administered an insufficient dosage, or no morphine at all. See Table 4-16 for a tabulation of the findings.

Table 4-16: Research Question #2/ Correctly Rated Pain and Administered Correct Dosage of Analgesic

	Patient A or ‘Robert’	Patient B or ‘Andrew’
Correct Dosage	119/236 (50.42%)	73/188 (38.83%)
Incorrect Dosage	117/236 (49.58%)	115/188 (61.17%)

Junior Students Only

Patient A (Robert)

The total number of juniors who participated in the study was 142. Of 142 junior nursing students, 122 of them (85.92%) correctly rated Robert’s pain intensity. For those 122 juniors who correctly assessed, 53 also administered the correct dosage of morphine (43.44%). Sixty-nine students, who correctly rated pain intensity, incorrectly medicated (56.56%).

Patient B (Andrew)

From the sample of 142 juniors participating in the study, 81 students (57.04%) correctly rated Andrew’s pain intensity. Twenty-four of those students also correctly administered 3mg of morphine (29.63%). Stated differently, of 81 junior students who accepted Andrew’s pain intensity, 57 administered less than adequate amounts of pain medication (70.37%). See Table 4-17 for a tabulation of the findings.

Table 4-17: Research Question #2/Juniors Only (Both Programs)

	Patient A or ‘Robert’	Patient B or ‘Andrew’
Correct Dosage	55/122 (44.43%)	24/81 (29.63%)
Incorrect Dosage	69/122 (56.56%)	57/81 (70.37%)

Senior Students Only

Patient A (Robert)

The total number of seniors who participated in the study was 128. Of the 128 seniors, 114 correctly rated Robert’s pain as ‘8’ (89.06%). Of those 114 senior students who correctly assessed Robert’s pain intensity, 66 administered the recommended dosage of morphine (57.89%). The remaining 48 students (42.11%) administered dosages less than the recommended amount, or no morphine at all.

Patient B (Andrew)

One-hundred seven (107) senior nursing students correctly rated Andrew’s pain intensity in the vignette (83.59%). Of those 107 students, 49 also correctly medicated with 3mg of morphine (45.79%). This left 58 students (54.21%) who gave inadequate dosages of the analgesic, or no analgesic at all. See Table 4-18 for a tabulation of the findings.

School of Nursing (By Program Level)

Data were also analyzed by program level and school of nursing for those who administered the correct dosage of analgesic and those who did not. See Table 4-19 for a tabulation of the findings.

Table 4-18: Research Question #2/ Seniors Only (Both Programs)

	Patient A or ‘Robert’	Patient B or ‘Andrew’
Correct Dosage	66/144 (57.89%)	49/107 (45.79%)
Incorrect Dosage	48/144 (42.11%)	58/107 (54.21%)

Table 4-19: Research Question # 2/ School of Nursing (By Program Level)

	TWC-FSN Juniors who correctly assessed	UT Juniors who correctly assessed	TWC-FSN Juniors who correctly assessed	UT Juniors who correctly assessed
	Robert	Robert	Andrew	Andrew
Correct Dosage	19/32 (59.38%)	34/90 (37.78%)	8/27 (29.63%)	16/54 (29.63%)
Incorrect Dosage	13/32 (40.63%)	56/90 (62.22%)	19/27 (70.37%)	38/54 (70.37%)
*****	*****	*****	*****	*****
	TWC-FSN Seniors who correctly assessed	UT Seniors who correctly assessed	TWC-FSN Seniors who correctly assessed	UT Seniors who correctly assessed
	Robert	Robert	Andrew	Andrew
Correct Dosage	20/27 (74.07%)	46/87 (52.87%)	15/26 (57.69%)	34/81 (41.98%)
Incorrect Dosage	7/27 (25.93%)	41/87 (47.13%)	11/26 (42.31%)	47/81 (58.02%)

Research Question #3

Research Question #3: What rationales do students identify for their correct and incorrect ratings of pain intensity and medication administration in response to the case vignettes?

The third research question was answered by analyzing nursing students' responses to Questions B. and D. from the case vignette instrument. These questions asked students, 'What influenced your decision and led you to record this intensity level?' and 'What influenced your decision and led you to choose this dosage of pain medication' (See Appendix C). The researcher organized findings based on correct or incorrect pain intensity ratings and correct or incorrect dosages of the analgesic for patients in the case vignette.

Rationale Categories for Correct Pain Intensity Ratings

'Patient A' (Robert) and 'Patient B' (Andrew) in the case vignette were both experiencing pain; however, they expressed their pain differently. Robert's behavioral manifestations included grimacing upon movement and lying quietly in the bed. Andrew, on the other hand, smiled, talked, and joked with a visitor. Both patients in this hypothetical scenario reported an '8' on the 0-10 numeric rating scale (NRS). After analyzing all responses from the junior and senior nursing students at TWC-FSN and UT, the following correct rationale categories for a pain intensity rating of '8' were identified:

- Record the patient's subjective report of pain, regardless of behavior
- Vital signs in normal range does not mean he is not in a lot of pain
- Atypical behavior may simply be a method of distraction
- Behavioral cues are not a legitimate reason for lowering the numerical rating
- People handle pain in different ways
- My own personal experience with pain caused me to record the patient's subjective rating
- Presence of visitor may be reason for not expressing pain outwardly

Some of the nursing students rated Robert and Andrew's pain as '8' in the case vignette, but did so for incorrect reasons, based on the rationale provided. Listed below are their incorrect reasons for correctly rating the pain intensity:

- Behavioral signs indicate pain
- Date and type of surgical procedure are reasons for pain
- Addiction is possible reason for patient reporting an increased pain level

Rationale Categories for Incorrect Pain Intensity Ratings

Nursing students who rated the pain intensity as something different from the patient's subjective report gave the following explanations:

- Behavioral signs do not equate with patients' stated pain intensity
- Physiological signs (vital signs) do not indicate a high level of pain
- Record an average of the subjective and objective findings
- Take what the patient states and cut in half
- Record personal opinion rather than patient's self-report
- The visitors presence in the room may cause the patient to give a numerical intensity rating that is higher or lower than what he actually feels
- Patient had abdominal surgery; therefore, the pain may be from bloating/gas
- Patient grimaces with movement, but he may be comfortable when lying still
- Patient may be taking advantage just to get 'pain killers'

Rationale Categories for Choosing the Correct Dosage of Analgesia

After students rated pain intensity for the hypothetical patient in the case vignettes, they were asked to choose the dosage of morphine they would administer. Given the specific data provided in the vignette about the patients, the recommended dosage was '3mg morphine now.' Those students who chose this dosage had both correct and incorrect reasons for doing so. The correct rationales given by junior and senior nursing students for the correct dosage of pain medication were:

- Patient continued to have elevated pain levels after the last dosage of morphine; therefore, increase the dose to 3mg

- No adverse effects from the previous dosage of medication
- Acceptable level of analgesia has not been reached, so give full dose
- Chances of oversedation are low based on previous reaction to this drug
- Dosage is within doctor's order
- If patient is seeking drugs, it is difficult to tell at first; so give full dosage now
- Enough time has lapsed to administer more medication
- Not all patients show pain in the same ways, so give the full dose

Some students chose to administer the correct dosage of pain medication to the patients, but had incorrect reasons for doing so. Below are incorrect rationales for administering the correct dosage of morphine:

- Behavioral cues showed he was really in pain
- Patient could be addicted to pain medication, therefore requiring a higher dosage for relief

Rationale Categories for Incorrect Dosages of Analgesia

Junior and senior nursing students at TWC-FSN and UT had many reasons for administering either no morphine, or a lower than recommended dosage. Students who chose to administer anything other than the full dose (3mg) of pain medication did so for the following reasons:

- Give least amount at first, reassess, and administer more if needed
- Give no medications now, wait a while, then reassess
- Give 2mg now; still have 1/3 of the dose to give later
- No behavioral signs of pain are present
- Give the lowest dose available
- Give lowest dose to 'satisfy' the patient; can't refuse him pain meds if ordered
- Vital signs are normal
- Patient has not asked for pain medication; therefore, do not administer
- Patient has not expressed need for pain relief; therefore, do not administer without asking
- Offer the pain medication first before administering
- Misread the scenario. Believed pain was currently '2' or currently '6-8'
- Misread the scenario. Believed 2mg morphine caused acceptable levels of pain relief
- Any dosage within the physician's order is correct, regardless of the patient's response to pain

- Necessary to ask physician before increasing dosage to 3mg, since last dosage was 2mg
- Non-drug comfort measures should be attempted first
- 3mg is the maximum dosage, so only 1mg more can be administered (since the last dose was 2mg)
- 2mg is the dosage he received previously, so repeat that dose
- The objective is to slowly wean off all morphine
- He isn't in much pain now, but give a small dose so it doesn't get worse
- Could be a drug abuser or at risk for addiction
- Afraid of overdosing the patient
- May be showing signs of dependence or a 'high'
- Give a small dosage to prevent unwanted side effects
- Give small dosage so patient will not become dependent on the drug
- 2mg reduced the pain slightly, so give same amount
- Patient is not at worst intensity level, so don't administer 3mg
- Some people need pain meds for psychological reasons
- No need to charge patient for unnecessary medications
- Second dose may have compounding effect when given on top of previous doses
- Give 2mg because it is in the middle of the range ordered by the doctor
- Do not feel that the patient is being honest; order is not for prophylaxis

Incorrect Pain Ratings and Dosages of Analgesia (Senior Students Only)

Categories of senior students' rationales for incorrectly recording pain intensity and choosing the incorrect dosage of morphine in the vignette are listed below.

Seniors' Rationales for Incorrect Pain Intensity Ratings

- Behavioral signs do not indicate pain (TWC-FSN and UT)
- Physiological signs (vital signs) do not indicate pain (TWC-FSN and UT)
- Take patient's self report and cut in half (UT)
- Patient grimaces with movement, but he may be comfortable when lying still (UT)

Seniors' Rationales for Incorrect Dosages of Analgesia

- Give least amount at first, reassess, and administer more if needed (UT)
- Give 2mg now; still have 1/3 of the dose to give later (UT)
- No behavioral signs of pain are present (TWC-FSN and UT)
- Give the lowest dose available (TWC-FSN and UT)
- Give lowest dose to 'satisfy' the patient; can't refuse him pain meds if ordered (UT)
- Vital signs are normal (UT)
- Patient has not asked for pain medication; therefore, do not administer (TWC-FSN)

- Patient has not expressed need for pain relief; therefore, do not administer without asking (TWC-FSN and UT)
- Offer pain medication first before administering (UT)
- Misread the scenario. Believed pain was currently '2' or currently '6-8.' (TWC-FSN and UT)
- Misread the scenario. Believed 2mg morphine caused an acceptable level of pain relief (TWC-FSN)
- Any dosage within the physician's order is correct, regardless of the dosage (TWC-FSN and UT)
- Necessary to ask physician before increasing dosage to 3mg, since last dosage was 2mg (TWC-FSN)
- 3mg is the maximum dosage, so only 1mg more can be administered (since the last dose was 2mg) (TWC-FSN)
- 2mg is the dosage he received previously, so repeat that dose (TWC-FSN and UT)
- He isn't in much pain now, but give a small dose so it doesn't get worse (TWC-FSN and UT)
- Afraid of overdosing the patient (UT)
- May be showing signs of dependence or a 'high' (UT)
- Give a small dosage to prevent unwanted side effects (UT)
- 2mg reduced the pain slightly, so give same amount (TWC-FSN)
- Patient is not at worst intensity level, so don't administer 3mg (UT)
- Some people need pain meds for psychological reasons (UT)
- No need to charge patient for unnecessary medications (TWC-FSN)
- Second dosage may have compounding effect when given on top of previous dose (TWC-FSN)
- Give 2mg because it is in the middle of the range ordered by the doctor (UT)
- Do not feel that the patient is being honest; order is not for prophylaxis (UT)

Specific Examples of Written Rationales (By Program and School of Nursing)

Nursing Students' Written Rationales for Assessing and Treating Pain "Juniors at TWC"

Assessment: 'Patient A' or 'ROBERT'

Correct Assessment Rating: "He states his pain is at level 8; however, I would note that he was smiling and joking with his visitor and did not appear to be in a great deal of pain (but that is only my opinion)."

Correct Assessment Rating: "The fact that he just recently had abdominal surgery, the grimace on his face when he moves. Since pain is subjective, it is important to believe he is honest about his level of pain."

Correct Assessment Rating: “Patient stated he was at that level. I wouldn’t really believe him because of his actions but he may hide pain well or have an addiction, either way it isn’t my right to make that judgment.”

Incorrect Assessment Rating: “Normal values don’t show distress. Grimaces and quietness make me less comfortable with reporting high pain.”

Incorrect Assessment Rating: “His vitals are only slightly elevated for what I would expect.”

Dosage: ‘Patient A’ or ROBERT

Correct Dosage: “He appears and states to be in much pain.”

Correct Dosage: “The patient has reported significant pain and shows signs of needing more relief. He is allowed 3mg and should be given the dose that will best relieve his pain and 2mg has not adequately relieved his pain.”

Correct Dosage: “He experienced no significant adverse effects 2 hours prior with 2mg of morphine and that dosage failed to adequately control his pain. It has been two hours and the orders allow for up to 3mg every 1 hour for pain so we need to try to relieve his pain if at all possible with the resources we have available.”

Incorrect Dosage: “Because pain is not brought down to the appropriate level and he showed no ‘real’ signs of pain.”

Incorrect Dosage: “He has identified 2 as an acceptable level of pain relief.”

Incorrect Dosage: “His pain level is now 2, so there is no need for morphine.”

Assessment: ‘Patient B’ or ‘ANDREW’

Correct Assessment: “Even though he is smiling, talking, and joking with his visitor, pain is a subjective finding. Patient stated 8, so chart an 8.”

Correct Assessment: “Because that is what the patient stated and I don’t have the right to chart any other answer except what he told me.”

Incorrect Assessment: “The patient is probably experiencing some pain, but other than what he says, he demonstrates no other signs that he is having pain of 8 on a 10 point scale.”

Incorrect Assessment: “Smiling and joking might lead me to think his pain isn’t that severe. Vitals are normal.”

Incorrect Assessment: "I gave a 4 because he probably is in pain, but he's probably exaggerating the 8 because he is smiling and joking. He probably would not be doing this if he really had pain level of 8."

Dosage: 'Patient B' or 'ANDREW'

Correct Dosage: "Since he only went down by 2 on the scale, 3mg might lower his pain even more."

Correct Dosage: "Level of pain needs to come down still, ignore visual cues and proceed with the MAR orders."

Incorrect Dosage: "I would give him the least amount ordered, then reassess in 10 minutes. If pain level is still elevated, then administer another milligram."

Incorrect Dosage: "In assessing the patient, vitals are normal range; therefore, he needs no further pain meds at this time."

Incorrect Dosage: "He has verbalized to me a 2 on the pain scale and this is acceptable to him at this time."

Incorrect Dosage: "Because he doesn't appear to be in that much pain and I wouldn't give him anything unless the patient asked for it."

Incorrect Dosage: "He identifies 2 as an acceptable level of pain relief."

Incorrect Dosage: "Patient still states 6-8 pain; administer 1 [mg] and go from there."

Incorrect Dosage: "He seems to not be having relief of pain, (even though I felt he wasn't in that much pain). I feel that if he had a pain level of 8, he would not be joking around. I only gave 1mg to see how he would respond."

Nursing Students' Written Rationales for Assessing and Treating Pain
"Seniors at TWC"

Assessment: 'Patient A' or 'ROBERT'

Correct Assessment Rating: "He said his pain was an 8 on the pain scale and I take that as face value."

Correct Assessment Rating: "This is the number indicated by the client, even though vital signs were stable and within normal limits. As the nurse, I can only go on what he has stated."

Incorrect Assessment Rating: "Lying quietly, grimaces."

Dosage: 'Patient A' or ROBERT

Correct Dosage: "The morphine is ordered 1-3 mg every 1 hour as needed. Due to the patient's pain level at 6-8 and no signs and symptoms of respiratory depression, etc., the patient can now have up to 3 mg of medication to relieve his pain since the med was received 2 hours ago."

Correct Dosage: "Because he looks like he's in pain, I give the maximum dosage"

Correct Dosage: "He is still not at an acceptable level of pain relief."

Correct Dosage: "He has no signs of respiratory depression or sedation so I would try to make him comfortable with the maximum dose of morphine."

Incorrect Dosage: "He tolerated the previous dosage well and pain level is still 6-8. The second dose may lower pain level even more and may have a compounding effect when given on top of previous 2mg dose."

Incorrect Dosage: "He is still having pain of 6-8 and no problems with morphine. Give 2mg if that is acceptable level of pain relief. Ask doctor on next round if he wants to increase to 3mg if verbal and nonverbal do not improve."

Assessment: 'Patient B' or 'ANDREW'

Correct Assessment Rating: "It was his rating of pain. My assessment would have been much lower, but he rated it."

Correct Assessment Rating: "I would have to trust what he said. Different people perceive pain in different ways and he could have been telling the truth."

Correct Assessment Rating: "If this is what he states his pain is, who am I to say he is lying. He may not want to show his friend that he is in any pain, so he hides it."

Incorrect Assessment Rating: "Smiling, joking with visitor, vital signs are normal."

Incorrect Assessment Rating: "He is smiling, continues to talk and joke with his visitor. His vital signs are good."

Dosage: 'Patient B' or 'ANDREW'

Correct Dosage: "He had 2 milligrams 2 hours ago and is still not in his acceptable pain range. Therefore, I would give 3mg and continue to assess pain and side effects such as respiratory depression. He also has not shown any side effects yet of morphine."

Correct Dosage: "Not all patients show pain the same way. The patient is stating he is in pain. Give the full dose."

Correct Dosage: "The patient says he is still in considerable pain, and there are no signs of respiratory depression or sedation, so I would give him the maximum dose to try to make him comfortable."

Incorrect Dosage: "He needs pain management, but it does not appear that he needs the maximum dose at this time as evidenced by physical signs and symptoms and nonverbal assessment."

Incorrect Dosage: "First, does patient indicate he wants pain medication? Second, begin with minimal dose unless otherwise indicated by patient."

Incorrect Dosage: "He now rates it as 2 whereas before it was 6-8. I would have asked him if he believed he needed more pain meds. He may be able to tolerate without any. He may be used to pain or just may not want any."

*Nursing Students' Written Rationales for Assessing and Treating Pain
"Juniors at UT"*

Assessment: 'Patient A' or 'ROBERT'

Correct Assessment Rating: "His subjective reported experience."

Correct Assessment Rating: "He stated his pain was 8 on the scale of 0-10, 10 the worst pain. Also, he had abdominal surgery the day before. Grimaces as he turns."

Correct Assessment Rating: "Eight is the score that the patient gave, and since I am not him, I have no real way of knowing what pain he is really feeling. He may be pleasant to try to cover up what he's feeling."

Correct Assessment Rating: "The patient is showing signs that he is in pain so I took him at his word."

Incorrect Assessment Rating: "His blood pressure is normal. He is lying quietly. Only grimaces. If 8 was actual pain rate, I would expect much more agony."

Incorrect Assessment Rating: "Blood pressure is not extremely elevated. Abdominal surgery: discomfort may be from gas. Grimace during movement: at rest he may be comfortable. Respirations are not extremely elevated."

Incorrect Assessment Rating: "Even though he is in pain because he grimaces, his heart rate is not up a great amount, so he is definitely in pain, but not extremely severe."

Dosage: 'Patient A' or ROBERT

Correct Dosage: "He can have up to 3mg every hour. It has been 2 hours since he has received 2mg and his pain has not been adequately reduced based on his ratings of 6-8. 2mg has already been tried so up it to 3."

Correct Dosage: "Give the full amount because he hasn't had a strong response to 2mg."

Correct Dosage: "If 2mg brought pain ratings of 6-8 while 2 is acceptable for the patient, I would try to increase dosage to see if that helps lower pain rating. Because there were no untoward side effects, I feel okay about giving the max allowable dose."

Incorrect Dosage: "The fact that he rates his pain at 2. The fact that there is no clinically significant respiratory depression, sedation, or other untoward side effects."

Incorrect Dosage: "If he asks for more, give up to 3mg ever 1 hour, but do not give the max unless asked for. Do not want to build dependence to drug."

Incorrect Dosage: "His own pain assessment is consistent with his non-verbals. Two milligrams is the mid range possibility and is a reasonable treatment."

Assessment: 'Patient B' or 'ANDREW'

Correct Assessment Rating: "This is what the patient said he felt. Some people can hide the fact that they are in pain and I think the best way to rate pain is based on the perception of the patient."

Correct Assessment Rating: "This is what Andrew stated. Even though he is smiling, talking, and making jokes, [this] does not mean that he is not in pain. This may just help him keep his mind off of it."

Correct Assessment Rating: "The pain scale is relative to each person and there's no way to standardize it for everyone. Andrew's pain is obviously not as intense as many people would rate an 8 because it doesn't seem to be affecting his vital signs or demeanor, but in Andrew's perspective, the pain may be very intense."

Incorrect Assessment Rating: "The patient was joking and seemed to go back to his regular routine."

Incorrect Assessment Rating: "With a pain rating of 8, I would expect the patient not to be that positive just a day after abdominal surgery."

Incorrect Assessment Rating: "He says he is in a lot of pain (8) but he is joking and laughing with his visitor. His vitals are within normal ranges and he shows no physical

signs of pain. A '6' is somewhere between the '8' he says and the '4' you think he is, because of context clues."

Dosage: 'Patient B' or 'ANDREW'

Correct Dosage: "If he is asking for pain medication, I would administer the maximum dose, since the 2mg dose did not significantly reduce his pain."

Correct Dosage: "I wanted to try to lower his pain to a level of 2. It had been 2 hours since the last dose, so hopefully 3mg would help."

Correct Dosage: "He has pain of 6-8 when he says 2 is acceptable. The reason I would give 3mg is that it has been 2 hours since the last morphine and it has caused no side effects."

Incorrect Dosage: "I would give him 1mg of morphine since it is ordered and would wait to see if he showed any visible signs of pain before I would give him a higher dose."

Incorrect Dosage: "He is not feeling a lot of pain, so the morphine ordered 'as needed' is not needed at this time."

Incorrect Dosage: "Because the patient still expressed pain and I don't want to overdose the patient."

*Nursing Students' Written Rationales for Assessing and Treating Pain
"Seniors at UT"*

Assessment: 'Patient A' or 'ROBERT'

Correct Assessment Rating: "It is not my objective assessment, but his subjective opinion that counts with pain management."

Correct Assessment Rating: "This is what the patient told me his pain was at. You can always make a comment, but I'd still write down what the patient tells me."

Correct Assessment Rating: "He rates his pain an 8 so that is what is recorded."

Incorrect Assessment Rating: "Vitals stable; lying quietly. Grimaces as he turns; shows slight pain. Take what he said and cut in half."

Incorrect Assessment Rating: "He is lying quietly in bed and only seems to mind/hurt when he rolls over which is understandable but to me it's like walking in a patients room after they ask for pain medicine and find them asleep...they don't need 3mg morphine."

Incorrect Assessment Rating: “His vital signs are stable, but I have had abdominal surgery and I know how painful it is.”

Dosage: ‘Patient A’ or ROBERT

Correct Dosage: “He hadn’t had any medicine in two hours and his pain was the highest he had rated it. The doctor ordered 1-3mg every hour, so I would give him 3mg because he was in a lot of pain and it had been two hours since his last dose. Two milligrams didn’t seem to work, so I would add an extra milligram.”

Correct Dosage: “If he is grimacing I would give him 3mg because 2 is obviously not giving him pain relief.”

Correct Dosage: “He’s still in a lot of pain, it’s been 2 hours since his last morphine and he’s not having any adverse side effects.”

Incorrect Dosage: “Patient is comfortable with 2/10 [pain intensity rating].”

Incorrect Dosage: “He is allowed dosage-wise to get more so I would give him 1mg simply because I see lots of people need pain medicine psychologically to feel better but I am not going to load him up just to sleep.”

Incorrect Dosage: “Since he is not at the worst pain/discomfort, I would administer 2mg.”

Incorrect Dosage: “He is in pain and has orders for pain meds. I chose 2mg because it is in the middle.”

Assessment: ‘Patient B’ or ‘ANDREW’

Correct Assessment Rating: “If the patient says 8, I must agree with him. I myself had major abdominal surgery when I was 21 and I acted just like Andrew, yet my pain was also an 8-10. I just simply had a high pain tolerance and did not show it much. Thus, I must believe that this is a possibility here.”

Correct Assessment Rating: “Pain is what the patient perceives. So, patient’s information is the most accurate pain measure.”

Correct Assessment Rating: “He said it was 8, it’s not my place to second guess or argue with him.”

Correct Assessment Rating: “Pain is what the patient says it is. You record what they say, not what you think their pain may be.”

Incorrect Assessment Rating: “Pain is what the patient says it is, but he is able to smile and joke so I wouldn’t think he is in quite as much pain as he would be if he was pale, diaphoretic, and had altered vitals...not to mention frowning and barely speaking. He could be pretending (lying) because of his friend/visitor.”

Incorrect Assessment Rating: “My decision was influenced by the fact the client is talking and joking. If he was in discomfort, he would be doing neither.”

Incorrect Assessment Rating: “His smiling and interaction with his visitor leads me to believe it isn’t an 8 but he still must be in some pain.”

Dosage: ‘Patient B’ or ‘ANDREW’

Correct Dosage: “Because this is the maximum prescribed and based on the previous range for pain was 6-8 and his last injection was 2 hours ago and he can have it as needed every 1 hour. I feel that 3mg would be appropriate.”

Correct Dosage: “The 2mg IV dose he received 2 hours prior apparently didn’t alleviate his pain and since he experienced no significant side effects, then I would administer a higher dose.”

Correct Dosage: “Because his pain did not decrease with the previous dose, it would be reasonable to go up and see what type of effect it has – if any.”

Incorrect Dosage: “If patient does not express need for pain relief, do not give him any medications.”

Incorrect Dosage: “He has not reached a comfortable state of pain management. Administering the smallest dose first is appropriate because it may achieve his goal and not oversedate him.”

Incorrect Dosage: “Rating of 6-8, the 2mg must have relieved the pain he rated at an 8, so try 2mg more. Then adjust higher or lower depending on how he rates it later.”

Chapter Four Summary

Student responses to the surveys were organized by research question. The findings of the study are summarized as follows:

Research Question # 1: To what extent do nursing students correctly rate patients’ verbal reports of pain intensity in two case vignettes?

- Of the 270 survey respondents, 236 (87.41%) nursing students correctly rated pain intensity for ‘Patient A’ or ‘Robert’ in the case vignette.

- Of the 270 survey respondents, 188 (69.63%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Research Question # 1. a.: How do ratings of pain in two case vignettes differ according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences?

School of Nursing

- Of the 66 survey respondents from Tennessee Wesleyan College-Fort Sanders Nursing (TWC-FSN), 59 (89.39%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 204 survey respondents from the University of Tennessee, 177 (86.76%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 66 survey respondents from Tennessee Wesleyan College-Fort Sanders Nursing (TWC-FSN), 53 (80.30%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette
- Of the 204 survey respondents from the University of Tennessee, 135 (66.18%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

School of Nursing (Seniors Only)

- Of the 28 survey respondents from Tennessee Wesleyan College-Fort Sanders Nursing (TWC-FSN) senior class, 27 (96.43%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 100 survey respondents from University of Tennessee senior class, 87 (87%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 28 survey respondents from Tennessee Wesleyan College-Fort Sanders Nursing (TWC-FSN) senior class, 26 (92.86%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 100 survey respondents from University of Tennessee senior class, 81 (81%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Program Level

- Of 142 survey respondents who were in their junior year, 122 (85.92%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 128 survey respondents who were in their senior year, 114 (89.06%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 142 survey respondents who were in their junior year, 81 (57.04%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 128 survey respondents who were in their senior year, 107 (83.59%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Program Level: Juniors (By School of Nursing)

- Of the 38 survey respondents from TWC-FSN junior class, 32 (84.21%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 104 survey respondents from UT junior class, 90 (86.54%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 38 survey respondents from TWC-FSN junior class, 27 (71.05%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 104 survey respondents from UT junior class, 54 (51.92%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Program Level: Seniors (By School of Nursing)

- Of the 28 survey respondents from TWC-FSN senior class, 27 (96.43%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.

- Of the 100 survey respondents from UT senior class, 87 (87%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 28 survey respondents from TWC-FSN senior class, 26 (92.86%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 100 survey respondents from UT senior class, 81 (81%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Gender

- Of 239 survey respondents who were female, 210 (87.87%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 30 survey respondents who were male, 26 (86.67%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 239 survey respondents who were female, 167 (69.87%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 30 survey respondents who were male, 21 (70%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Ethnicity

- Of 270 survey respondents, 248 were Caucasian, 14 were African American, 3 were Asian American, and 5 were 'Other.'
- Because there was not enough diversity among ethnic groups, differences were not tabulated.

Age

- Of 270 survey respondents, 263 nursing students reported age.
- Of 263 survey respondents who reported age, the range was 20-58, the median was 22, and the mean was 24.44.
- Of 263 survey respondents who reported age, 224 (85.17%) were between 20-29 years of age and 39 (14.83%) were ages 30 or older.

- Of 224 survey respondents who were between 20-29 years of age, 197 (87.95%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 39 survey respondents who were 30 years old or above, 37 (94.87%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 224 survey respondents who were between 20-29 years of age, 157 (70.09%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 39 survey respondents who were 30 years old or above, 29 (74.36%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Education or Formal Training

- Of 33 survey respondents who reported previous education or formal training, 26 (78.79%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 236 survey respondents who reported no previous education or formal training, 209 (88.56%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 33 survey respondents who reported previous education or formal training, 23 (69.70%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 236 survey respondents who reported no previous education or formal training, 164 (69.49%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Previous Education or Formal Training (By Program Level)

- Of the 20 survey respondents from the junior group who reported previous education or formal training in pain, 15 (75%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 13 survey respondents from the senior group who reported previous education or formal training in pain, 11 (84.62%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.

- Of the 20 survey respondents from the junior group who reported previous education or formal training in pain, 12 (60%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 13 survey respondents from the senior group who reported previous education or formal training in pain, 11 (84.62%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

No Previous Education or Formal Training (By Program Level)

- Of the 121 survey respondents from the junior group who reported no previous education or formal training in pain, 107 (88.43%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 115 survey respondents from the senior group who reported no previous education or formal training in pain, 103 (89.57%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 121 survey respondents from the junior group who reported no previous education or formal training in pain, 69 (57.02%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 115 survey respondents from the senior group who reported no previous education or formal training in pain, 96 (83.48%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Personal Experience with Pain

- Of 206 survey respondents who reported having personal experiences with pain, 177 (85.92%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 63 survey respondents who reported having no personal experiences with pain, 58 (92.06%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 206 survey respondents who reported having personal experiences with pain, 138 (66.99%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 63 survey respondents who reported having no personal experiences with pain, 49 (77.78%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Personal Experience with Pain (By Program Level)

- Of the 114 survey respondents from the junior group who reported having personal experiences with pain, 96 (84.21%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 92 survey respondents from the senior group who reported having personal experiences with pain, 81 (88.04%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 114 survey respondents from the junior group who reported having personal experiences with pain, 60 (52.63%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 92 survey respondents from the senior group who reported having personal experiences with pain, 78 (84.78%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

No Personal Experience with Pain (By Program Level)

- Of the 27 survey respondents who reported having no personal experiences with pain from the junior group, 25 (92.59%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 36 survey respondents who reported having no personal experiences with pain from the senior group, 33 (91.67%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of the 27 survey respondents who reported having no personal experiences with pain from the junior group, 20 (74.07%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of the 36 survey respondents who reported having no personal experiences with pain from the senior group, 29 (80.56%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Caring for Others in Pain

- Of 225 survey respondents who reported previously caring for others in pain, 197 (87.56%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.

- Of 44 survey respondents who reported never caring for others in pain, 38 (86.36%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 225 survey respondents who reported previously caring for others in pain, 163 (72.44%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 44 survey respondents who reported never caring for others in pain, 24 (54.55%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Caring for Others in Pain (By Program Level)

- Of 100 survey respondents from the junior group who reported previously caring for others in pain, 85 (85%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 125 survey respondents from the senior group who reported previously caring for others in pain, 112 (89.60%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 100 survey respondents from the junior group who reported previously caring for others in pain, 57 (57%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 125 survey respondents from the senior group who reported previously caring for others in pain, 106 (84.80%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Have Not Cared for Others in Pain (By Program Level)

- Of 41 survey respondents who reported never caring for others in pain from the junior group, 36 (87.80%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 3 survey respondents who reported never caring for others in pain from the senior group, 2 (66.67%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 41 survey respondents who reported never caring for others in pain from the junior group, 23 (56.10%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

- Of 3 survey respondents who reported never caring for others in pain from the senior group, 1 (33.33%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Exposure to Instrument

- Of 99 survey respondents who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 87 (87.88%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 169 survey respondents who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 147 (86.98%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 99 survey respondents who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 74 (74.75%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 169 survey respondents who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 112 (66.27%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Exposure to Instrument (By Program Level and School of Nursing: TWC-FSN)

- Of 15 survey respondents from the junior class at TWC-FSN, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 13 (86.67%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 19 survey respondents from the senior class at TWC-FSN, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 19 (100%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 15 survey respondents from the junior class at TWC-FSN, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 11 (73.33%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 19 survey respondents from the senior class at TWC-FSN, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it),

18 (94.74%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Not Exposed to Instrument (By Program Level and Nursing School: TWC-FSN)

- Of 23 survey respondents from the junior class at TWC-FSN, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 19 (82.61%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 9 survey respondents from the senior class at TWC-FSN, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 8 (88.89%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 23 survey respondents from the junior class at TWC-FSN, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 16 (69.57%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 9 survey respondents from the senior class at TWC-FSN, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 8 (88.89%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Exposure to Instrument (By Program Level and School of Nursing: UT)

- Of 23 survey respondents from the junior class at UT, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 19 (82.61%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 42 survey respondents from the senior class at UT, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 36 (85.71%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 23 survey respondents from the junior class at UT, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 13 (56.52%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 42 survey respondents from the senior class at UT, who had been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 32

(76.19%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Not Exposed to Instrument (By Program Level and School of Nursing: UT)

- Of 80 survey respondents from the junior class at UT, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 70 (87.50%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 58 survey respondents from the senior class at UT, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 51 (87.93%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette.
- Of 80 survey respondents from the junior class at UT, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 40 (50%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 58 survey respondents from the senior class at UT, who had never been exposed to McCaffery and Ferrell's case vignette instrument (or one similar to it), 49 (84.48%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.

Research Question #2: To what extent do students, who correctly rate a patient's stated pain intensity, also correctly administer the recommended dosage of analgesic under the conditions provided in the case vignette?

Sample as a Whole

- Of 270 survey respondents, 236 (87.41%) nursing students correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette and 188 (69.63%) nursing students correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette.
- Of 236 survey respondents who correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 119 (50.42%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 188 survey respondents who correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 73 (38.83%) nursing students administered the recommended dosage of analgesic for the same patient.

Junior Students Only

- Of 122 survey respondents who were in the junior class and correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 53 (43.44%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 81 survey respondents who were in the junior class and correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 24 (29.63%) nursing students administered the recommended dosage of analgesic for the same patient.

Senior Students Only

- Of 114 survey respondents who were in the senior class and correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 66 (57.89%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 107 survey respondents who were in the senior class and correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 49 (45.79%) nursing students administered the recommended dosage of analgesic for the same patient.

School of Nursing (By Program Level: Junior Class)

- Of 32 survey respondents who were in the TWC-FSN junior class and correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 19 (59.38%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 90 survey respondents who were in the UT junior class and correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 34 (37.78%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 27 survey respondents who were in the TWC-FSN junior class and correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 8 (29.63%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 54 survey respondents who were in the UT junior class and correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 16 (29.63%) nursing students administered the recommended dosage of analgesic for the same patient.

School of Nursing (By Program Level: Senior Class)

- Of 27 survey respondents who were in the TWC-FSN senior class and correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 20 (74.07%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 87 survey respondents who were in the UT senior class and correctly rated pain intensity for 'Patient A' or 'Robert' in the case vignette, 46 (52.87%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 26 survey respondents who were in the TWC-FSN senior class and correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 15 (57.69%) nursing students administered the recommended dosage of analgesic for the same patient.
- Of 81 survey respondents who were in the UT senior class and correctly rated pain intensity for 'Patient B' or 'Andrew' in the case vignette, 34 (41.98%) nursing students administered the recommended dosage of analgesic for the same patient.

Research Question #3: What rationales do students identify for their correct and incorrect ratings of pain intensity and medication administration in response to the case vignettes?

Rationales for Correct Pain Intensity Ratings

- Record the patient's subjective report; regardless of behavior
- Atypical behavior may simply be a method of distraction
- My own personal experience with pain caused me to record the patient's subjective rating
- Vital signs in normal range does not mean he is not in a lot of pain
- Behavioral cues are not a legitimate reason for lowering the numerical rating
- People handle pain in different ways
- Presence of visitor may be reason for not expressing pain outwardly
- Behavioral signs indicate pain (Incorrect Rationale)
- Date and type of surgical procedure are reasons for pain (Incorrect Rationale)
- Addiction is possible reason for patient reporting an increased pain level (Incorrect Rationale)

Rationales for Incorrect Pain Intensity Ratings

- Behavioral signs do not indicate pain
- Physiological signs (vital signs) do not indicate pain

- Record an average of the subjective and objective findings
- Take patient's self report and cut in half
- Record personal opinion rather than patient's self-report
- The visitor's presence in the room may cause the patient to give a numerical intensity rating that is higher or lower than what he actually feels
- Patient had abdominal surgery; therefore, the pain may be from bloating/gas
- Patient grimaces with movement, but he may be comfortable when lying still
- Patient may be taking advantage just to get 'pain killers'

Rationales for Correct Dosage of Analgesia

- Patient continues to have elevated pain levels two hours after the last dosage of 2mg morphine, so increase the dose to 3mg
- Acceptable pain level has not been reached
- Dosage is within range of doctor's order
- If patient is seeking drugs, it is difficult to know at first, so give full dosage this time
- No adverse effects from the previous dosage of medication
- Chances of oversedation are low based on previous reaction to this drug
- Enough time has lapsed to administer more medication
- Behavioral cues showed he was really in pain
- Patient could be addicted to pain medication, therefore requiring a higher dosage for relief
- Not all patients show pain in the same ways, so give the full dose

Rationales for Incorrect Dosage of Analgesia

- Give least amount at first, reassess, and administer more if needed
- Give 2mg now; still have 1/3 of the dose to give later
- No behavioral signs of pain are present
- Give the lowest dose available
- Give lowest dose to 'satisfy' the patient; can't refuse him pain meds if ordered
- Give no medications now, wait a while, then reassess
- Vital signs are normal
- Patient has not asked for pain medication; therefore, do not administer
- Patient has not expressed need for pain relief; therefore, do not administer without asking
- Offer pain medication first before administering
- Misread the scenario. Believed pain was currently '2' or currently '6-8.'
- Misread the scenario. Believed 2mg morphine caused an acceptable level of pain relief
- Any dosage within the physician's order is correct, regardless of the dosage.
- Non-drug comfort measures should be attempted first

- Necessary to ask physician before increasing dosage to 3mg, since last dosage was 2mg
- 3mg is the maximum dosage, so only 1mg more can be administered (since the last dose was 2mg)
- 2mg is the dosage he received previously, so repeat that dose
- The objective is to slowly wean off all morphine
- He isn't in much pain now, but give a small dose so it doesn't get worse
- Could be a drug abuser or at risk for addiction
- Afraid of overdosing the patient
- May be showing signs of dependence or a 'high'
- Give a small dosage to prevent unwanted side effects
- Give small dosage so patient will not become dependent on the drug
- 2mg reduced the pain slightly, so give same amount
- Patient is not at worst intensity level, so don't administer 3mg
- Some people need pain meds for psychological reasons
- No need to charge patient for unnecessary medications
- Second dosage may have compounding effect when given on top of previous dose
- Give 2mg because it is in the middle of the range ordered by the doctor
- Do not feel that the patient is being honest; order is not for prophylaxis

Senior Nursing Students' Rationales for Incorrect Pain Intensity Ratings

- Behavioral signs do not indicate pain (TWC-FSN and UT)
- Physiological signs (vital signs) do not indicate pain (TWC-FSN and UT)
- Take patient's self report and cut in half (UT)
- Patient grimaces with movement, but he may be comfortable when lying still (UT)

Senior Nursing Students' Rationales for Incorrect Dosages of Analgesia

- Give least amount at first, reassess, and administer more if needed (UT)
- Give 2mg now; still have 1/3 of the dose to give later (UT)
- No behavioral signs of pain are present (TWC-FSN and UT)
- Give the lowest dose available (TWC-FSN and UT)
- Give lowest dose to 'satisfy' the patient; can't refuse him pain meds if ordered (UT)
- Vital signs are normal (UT)
- Patient has not asked for pain medication; therefore, do not administer (TWC-FSN)
- Patient has not expressed need for pain relief; therefore, do not administer without asking (TWC-FSN and UT)
- Offer pain medication first before administering (UT)
- Misread the scenario. Believed pain was currently '2' or currently '6-8.' (TWC-FSN and UT)
- Misread the scenario. Believed 2mg morphine caused an acceptable level of pain relief (TWC-FSN)

- Any dosage within the physician's order is correct, regardless of the dosage (TWC-FSN and UT)
- Necessary to ask physician before increasing dosage to 3mg, since last dosage was 2mg (TWC-FSN)
- 3mg is the maximum dosage, so only 1mg more can be administered (since the last dose was 2mg) (TWC-FSN)
- 2mg is the dosage he received previously, so repeat that dose (TWC-FSN and UT)
- He isn't in much pain now, but give a small dose so it doesn't get worse (TWC-FSN and UT)
- Afraid of overdosing the patient (UT)
- May be showing signs of dependence or a 'high' (UT)
- Give a small dosage to prevent unwanted side effects (UT)
- 2mg reduced the pain slightly, so give same amount (TWC-FSN)
- Patient is not at worst intensity level, so don't administer 3mg (UT)
- Some people need pain meds for psychological reasons (UT)
- No need to charge patient for unnecessary medications (TWC-FSN)
- Second dosage may have compounding effect when given on top of previous dose (TWC-FSN)
- Give 2mg because it is in the middle of the range ordered by the doctor (UT)
- Do not feel that the patient is being honest; order is not for prophylaxis (UT)

Chapter Five

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Overview

This study was designed to explore nursing students' assessment ratings and treatment choices for patients experiencing pain. The findings provide implications for nursing education, curriculum, and instruction, as well as conclusions about the understanding of pain assessment among the student participants. Nursing students' demographic data and personal experiences were disaggregated in relation to their responses to a hypothetical patient in a case vignette instrument. Students provided written rationales for pain intensity ratings and dosages of pain medication chosen for the patients in the vignettes.

Previous research studies have thoroughly documented nurses' inaccurate pain assessment methods and inadequate treatment measures with opioid analgesics; however, very few studies of that nature have focused on nursing students as the population. In fact, the current study was the first to compare nursing students, at two different points in the curriculum, to analyze the differences between the two groups (juniors and seniors) in regard to pain assessment and treatment.

This chapter includes a discussion of the study's conclusions in relation to findings that have evolved from previous research studies about pain assessment and management. This chapter also addresses implications for the field of nursing education based on the results of the study. Recommendations for future research with nursing students are provided.

Conclusions and Implications

Research Question #1: To what extent do nursing students correctly rate patients' verbal reports of pain intensity in two case vignettes?

Conclusion: A majority of students participating in the current study rated the pain correctly for patients in the case vignette. However, 17.78 percent fewer students rated Andrew's pain correctly.

Findings from the current study showed 87.41 percent of the nursing students in the sample correctly rating pain intensity for 'Patient A' or 'Robert' in the case vignette and 69.63 percent correctly rating pain intensity for 'Patient B' or 'Andrew' in the case vignette. This was a difference of 17.78 percent for the pain ratings of two patients with differing behavioral manifestations.

Conclusion: Results of this study were similar to findings reported by McCaffery and Ferrell in 1991 where a substantially higher percentage of nurses correctly rated the pain of the patient with typical behaviors, as opposed to the patient with atypical behaviors.

These data mirror the findings of McCaffery and Ferrell's study using the same vignette. In their sample, only 40.7 percent of the nurses correctly rated Andrew's pain, whereas 71.6 percent correctly rated Robert's pain. 'Robert' displayed typical signs of pain such as grimacing upon movement and lying quietly in the bed, while 'Andrew' portrayed atypical signs of pain such as smiling and joking with a visitor. Nursing students in this sample were more likely to accept the subjective report of pain from the patient displaying typical signs.

Research Question #1: Discussion/Implications

The findings of this study were congruent with the results of other studies with samples of nurses. However, the sample used in the current study consisted of nursing students. The question now lies in the breadth of this problem. Could the same

conclusions be derived from other samples of nursing students? Chuk (2002) found that senior nursing students in Hong Kong rated pain differently for patients in a vignette, based on behaviors. These findings may also pique one's curiosity as to when these misconceptions originated and how they were formed. Would a sample of non-nursing students at Tennessee Wesleyan College and The University of Tennessee render the same results? McCaffery and Ferrell (1996) found that non-nursing students in their sample had similar misconceptions as those of practicing nurses toward patients in pain. What about a sample of elementary school students? Do people learn at such an early age to discount another person's spoken word, if it is not accompanied by a parallel behavior? These questions are worth exploring.

Despite the magnitude of literature that has been published surrounding this issue and the strides that have been taken to reshape healthcare workers' ways of thinking, patients continue to suffer unnecessarily because their reports of pain are oftentimes not accepted, respected, or acted upon. One may wonder what it would take to completely eradicate the myths associated with pain assessment.

If patients are taught to use humor, laughter, and social interaction as means of distraction from pain, why do clinicians then make judgments about the quality and intensity of pain based on behaviors? This is another question to be addressed.

Research Question # 1. a.: How do ratings of pain in two case vignettes differ according to students' school of nursing, program level, gender, ethnicity, age, previous education, and personal experiences?

School of Nursing

Conclusion: *Students from each school of nursing rated pain intensity similarly for the patient who expressed typical signs of pain; however, there was a substantial difference*

in the percentages of students from the two schools of nursing that rated Andrew's pain correctly in the vignette.

Findings of this study showed that 89.39 percent of TWC-FSN students and 86.76 percent of UT students correctly assessed Robert's pain in the case vignette. Results showed that 80.30 percent of TWC-FSN students and 66.18 percent of UT students correctly assessed Andrew's pain in the case vignette.

School of Nursing (Senior Students Only)

Conclusion: *Senior nursing students alone, from both schools of nursing, had higher percentages of correct assessments when compared to the assessments of junior students alone, and juniors and seniors combined.*

As mentioned in Chapter three, junior nursing students were in their first semester of nursing school at the time of data collection. At the time of data collection, neither school of nursing had encountered pain management content in 'Foundations of Nursing' curriculum, the course where this topic is formally introduced. Seniors, however, had received such instruction approximately one year prior to data collection. For both schools of nursing, this instruction took place in a classroom setting. Pain management content is initially introduced in the first semester, and also integrated throughout the curriculum and clinical experiences in the junior and senior years. Juniors were not expected to possess such knowledge; however, it was anticipated that seniors would understand pain management concepts, since most of them had cared for others in pain through clinical experiences. When the data were viewed in terms of senior students alone, the percentages of correct assessments as a whole were higher, as expected.

Conclusion: *There were substantial differences between senior students' responses from TWC-FSN and UT, in the percentage of correct pain ratings for both patients in the vignettes.*

There was a 9.43 percent difference in correct pain ratings for ‘Patient A’ or Robert in the vignette, with more senior students at TWC-FSN correctly rating pain, when compared to senior students at UT. When rating Andrew’s pain, 11.86 percent more students from TWC-FSN correctly rated pain intensity, when compared to senior students at UT.

Program Level

Conclusion: *Pain assessment education during the junior and senior years had a positive impact on participants’ knowledge and understanding.*

A majority of the students participating in this study, at both program levels (junior/senior), rated the patients’ pain correctly in the vignette; however, senior students at both schools of nursing (TWC-FSN and UT) were more prepared than junior students to assess, rate, and document pain. Senior students’ percentages of correct pain ratings were higher than the junior group at both schools of nursing (TWC-FSN and UT); however, the most substantial difference was with Andrew in the vignette.

Findings of this study showed 85.92 percent of junior nursing students correctly rated pain intensity for the Robert vignette, while 89.05 percent of senior nursing students correctly rated pain intensity for the same patient. Andrew, on the other hand, received correct documentation of his pain rating from 57.04 percent of junior nursing students and 83.59 percent of senior nursing students.

Approximately 21 percent (21.81%) more senior students than junior students in this sample from TWC-FSN correctly rated Andrew’s pain in the vignette. Almost 30 percent (29.08%) more senior students than junior students in this sample from UT correctly rated Andrew’s pain in the vignette.

Conclusion: *Present instruction on pain assessment and management is inadequate for meeting the needs of all students.*

In this sample, 83.59 percent of the seniors knew to document the verbal report of pain, even when the patient was talking and joking with the visitor. However, the other 16.41 percent recorded something other than the patient's subjective report, for various reasons. These patterns of incorrect thinking may be related to the curriculum or current instructional methods.

Gender

Conclusion: *Based on this sample of students, gender does not appear to be a factor in pain assessment and management.*

Results of this study showed similar findings for both male and female students. In the Robert vignette, 87.87 percent of female students from this sample correctly rated pain, while 86.67 percent of male students correctly rated pain for the same hypothetical patient. In the Andrew vignette, 69.87 percent of the female students in the sample correctly rated pain intensity, while 70 percent of male students did the same.

Ethnicity

Conclusion: *Within this sample, there was not enough representation from various ethnic groups to show differences based on ethnicity.*

Caucasians represented the majority of the sample in this study. There was little representation from other ethnic groups. There were only fourteen African American students, three Asian American students, and five students who reported 'Other' on the demographic questionnaire. Because of the low percentage of students from different ethnic groups, differences in students' pain ratings were not disaggregated by ethnicity.

Age

Conclusion: *Older students in this study were more likely to rate pain intensity correctly than were younger students.*

Based on the ages of the participants in the sample, two groups were formulated. Students whose ages were between 20-29 represented the first group (n = 224) and students ages 30 and above represented the second group (n = 39). In the Robert vignette, 87.95 percent of the '20-29' group correctly rated pain intensity, whereas 94.87 percent of the '30 and above' group correctly assessed. In the Andrew vignette, 70.09 percent of the '20-29' group correctly rated pain intensity, whereas 74.36 percent of the '30 and above' group did the same. Even though the nursing students who were biologically older correctly rated pain intensity more often than the younger age group in this sample, there were still approximately five percent of those students who incorrectly rated pain for Robert and over 25 percent who incorrectly rated pain for Andrew.

Conclusion: *Results of this study were similar to findings reported by Gerstle in 2001, where the age of participants made a positive difference in their pain assessments.*

Gerstle's (2001) reported significant differences in nurses who were ages 34 and younger, versus nurses who were ages 34 and older, in relation to their abilities to make judgments about pain. Positive differences favored the nurses who were in the '34 and older' age group.

Education or Formal Training

Conclusion: *Previous education or formal training about pain did not positively influence participants' ratings of pain in the two vignettes.*

Results of this study showed only 33 students in the sample reporting previous education or training in pain assessment. This left 236 participants who reported no such education or training prior to nursing school. A curious finding was that 78.79 percent of

those with previous training (both juniors and seniors) correctly assessed Robert's pain intensity in the vignette, whereas 88.56 percent who indicated no training correctly rated pain intensity in the same scenario. One might have predicted that previous formal training would have improved pain assessment; however, the opposite occurred. On the other hand, there was only a fractional difference between students' ratings of Andrew's pain. From those students in the sample who indicated previous formal training (both juniors and seniors), 69.70 percent correctly rated Andrew's pain, while 69.49 percent of students with no formal training correctly rated Andrew's pain. A possible explanation for these findings might be that the previous education or training received by the students prior to nursing school excluded current research in pain management and information about common misconceptions held by nurses who care for patients in pain.

Personal Experience with Pain

Conclusion: *Personal pain experiences did not positively influence participants' ratings of pain in the two vignettes. Moreover, nursing students who reported no moderate or severe pain experiences were more likely to correctly rate pain intensity in the vignettes, than those who reported personal experiences with pain.*

Results from this study revealed 206 nursing students who had personally experienced moderate or severe pain, and 63 who had not. In the Robert vignette, 85.92 percent of the students in the sample with personal pain experiences correctly rated pain intensity, whereas 92.06 percent of students without personal pain experiences correctly assessed the same patient. An even larger difference was revealed when students rated the patient with atypical behavioral manifestations. In the Andrew vignette, 66.99 percent of students in the sample reporting personal pain experiences correctly assessed,

while 77.78 percent of students reporting no personal pain experience correctly rated Andrew's pain.

Conclusion: *Results of this study are similar to findings reported by Gerstle (2001), but contrary to the findings reported by Holm, et al.,(1989).*

The results of this study are opposite of the findings reported by Holm, Cohen, Medema, and Allen (1989) whose data showed that assessment of a patient's pain was significantly more accurate when the nurse had personally experienced pain. The findings of the current study are congruent with the conclusions reported by Gerstle (2001) where personal pain experiences of nurses were not related to improved perception or judgment of patient's pain.

Caring for Others in Pain

Conclusion: *Students in this study who had provided care for others experiencing pain were more likely to correctly rate pain intensity for both patients in the vignettes, when compared to students who had not provided care for others in pain. Moreover, senior students with this background were more proficient than juniors.*

In the current study, findings showed that the majority of the students in the sample had cared for others in pain (n = 225). When considering this variable, students' pain ratings were similar for the patient who exemplified typical pain behaviors (Robert). However, 72.44 percent of the participants who had cared for others in pain correctly rated pain intensity for Andrew in the vignette, while only 54.55 percent of the students who reported never caring for others in pain, correctly assessed the same patient.

Conclusion: *There were both similarities and differences found when comparing findings of this study with other studies identified in the literature.*

The findings of this study were contrary to the findings reported by Gerstle (2001) where no correlation was identified between nurses' experiences caring for patients in pain and their pain intensity perception.

The findings of the current study, however, validated Benner's novice to expert theory. In her theory, Benner explained that experience leads to the advancement of skill acquisition. A study by Corcoran (1986) accentuated these findings, as she reported many differences in pain management choices based on level of expertise. Contrarily, Hammers, et al. (1997) reported no differences between novices, intermediates, and expert nurses in the area of pain assessment.

Exposure to Instrument

Conclusion: *In this sample of students, previous exposure to the instrument made a positive difference in correct pain ratings for both patients in the vignettes.*

It was predicted that students who had been exposed to the Andrew-Robert instrument in the past might be more likely to correctly rate pain intensity. This prediction was correct for this sample of students, although differences were not drastic. The major difference was seen in the Andrew vignette where 74.75 percent of the nursing students, who had been exposed to the instrument (74/99), correctly assessed; whereas, only 66.27 percent (112/169) who reported never being exposed to the instrument, correctly assessed the same patient.

Research Question #1. a.: Discussion/Implications

Findings related to program level and school of nursing were interesting because data were collected from both schools of nursing at the end of the first semester for junior students and at the end of the third semester for senior students. The differences found

between the two program levels (junior/senior) were anticipated; however, it was not expected that the school of nursing attended would make a difference in student responses. These findings cannot be compared to other study results because no study has attempted to compare differences between nursing students' assessments of pain at two different schools of nursing. However, one possible explanation could be formulated by reviewing the results from Graffam's 1990 study. The results showed many variances between baccalaureate nursing programs in the time spent teaching pain content in the curriculum.

These findings provoke questions related to the differences between the two nursing programs. Could this mean that the two nursing programs use different instructional methods for presenting content about pain? Do the two nursing programs have the same number of hours allocated in the curriculum for pain content? Are there differences in the types of clinical experiences obtained at the two schools of nursing? The answers to these questions could help explain the findings of this study.

Gender, ethnicity, and age were all elicited from the student participants for the purpose of identifying differences in pain ratings, based on these demographic variables. Gender did not make a difference in responses and there was not enough representation from different ethnic groups to show differences. One may question whether or not results would have been similar in a large urban school setting with more student diversity. Are African American students or Asian American students more likely to accept a patient's subjective report of pain, without making judgments based on behavior?

In this sample, students who reported an age of 30 years or above were more likely to document the pain intensity number given by the patient in the vignette. This leads to the following question: ‘Is there a relationship among age, wisdom, and acceptance of verbal reports of pain intensity?’ Could this indicate that older nursing students are more likely to accept reports of pain based on previous life experiences? These issues are worthy of further investigation.

Previous experiences such as education or formal training prior to nursing school, personal pain experiences, and caring for others in pain were elicited from the students in this sample to determine their effects on pain assessment. Education prior to nursing school did not make a positive difference with this sample. However, there were only 33 students who reported having such training. Curiously, more students from this group of 33 incorrectly rated Robert’s pain intensity than those who reported no prior training. This would lead one to ask, ‘What kind of training was attended?’ ‘What were the objectives of the course?’ ‘Were common misconceptions and current research findings about pain assessment addressed in the course?’ The answers to these questions might provide an explanation for the findings.

It was anticipated that participants who had personally experienced pain would be more likely to accept the patient’s report in the vignette; however, the opposite occurred. There are discrepancies among the findings in the literature related to this topic. Does this mean that personal pain experiences make one less sensitive to others’ painful experiences? If the conditions provided in the vignette were altered, would results have been the same?

Those participants who had cared for others in pain were more likely to correctly rate pain for both patients in the vignettes. This was a positive finding because it leads one to believe that students' clinical experiences have prepared them for assessing patients' pain. Does this mean that providing care for others in pain leads to the development of empathy and compassion? One may question if empathy, compassion, and respect for others' reports of pain can actually be learned in the classroom, without actual patient contact. This is an important question for educators to consider.

Students in this sample who reported prior exposure to the instrument documented the number given by the patient on the numeric rating scale more often. This leads one to question whether the use of such an instrument could serve as a unique and beneficial learning tool in the classroom setting. Since clinical experiences are different for each student, based on his or her patient assignment, a case vignette would be a way to assure that each student received the same information. Are classroom presentations, case vignettes, clinical experiences, role-play, or other instructional methods more likely to result in desired knowledge and skills? At this point, the most effective methods for teaching pain assessment and management are unknown.

In most cases, senior students were more likely to correctly assess and treat pain than junior students, despite other demographic variables. With these results, Patricia Benner's theory of progression through skill acquisition was supported. Although nursing students are not classified any higher than novices on the 'novice to expert' continuum, the theory of advancement through education and experiences was strengthened by the results of this study.

Research Question #2: To what extent do students, who correctly rate a patient's stated pain intensity, also correctly administer the recommended dosage of analgesic, under the conditions provided in the case vignette?

Conclusion: *There was not a strong connection between correct pain intensity rating and correct dosage of analgesic.*

Findings in the current study sample showed 236 nursing students who correctly rated pain intensity in the Robert vignette. Only 119 (50.42%) of those students also correctly administered the correct dosage of morphine. When responding to the Andrew vignette, 188 students correctly rated pain intensity. However, only 73 (38.83%) of those students also administered the correct amount of pain medication.

Question #2 (By Program Level)

Conclusion: *Nursing faculty's efforts to dispel myths and encourage adequate pain control through the curriculum have been only partially effective.*

Of the 81 junior students who correctly rated pain in the Andrew vignette, only 24 (29.63 %) students administered the recommended dosage of morphine (3mg). From the sample of senior nursing students who correctly assessed pain in the same vignette, 45.79 percent administered the correct dosage of morphine. This was a difference of 16.16 percent between the junior students and senior students for 'Patient B' in the vignette. The results for the Robert vignette were similar with 44.43 percent of the juniors administering the correct dosage and 57.89 percent of the seniors doing the same. This was a difference of 13.46 percent between the junior students and senior students for 'Patient A' in the vignette.

Even though there was progression in knowledge from one program level to the other, the majority of senior students were influenced by the atypical behavioral

manifestations presented by Andrew in the vignette, when choosing the dosage of morphine to administer.

Conclusion: *Results of this study were congruent with findings reported by Heath (1998) and McCaffery, et al., (2000), where nurses were hesitant to increase the dosage of analgesic for patient displaying atypical signs of pain.*

These findings were similar to study results reported by Heath (1998), who used a similar version of the same instrument. Heath's study showed that only 31 percent of nurse participants administered the recommended dosage of morphine to the patient who talked and joked with visitors in the vignette. In a 2000 study conducted by McCaffery, Ferrell, and Pasero, results were similar. Only 47.3 percent of the nurses increased the dosage of morphine for the smiling patient (Andrew), as opposed to 62.5 percent who administered the recommended dosage to the grimacing patient (Robert).

Conclusion: *The results of this study, as well as reports from other studies identified in the literature, suggest that education fosters some increase in knowledge, which leads to improved decision-making about pain management. However, it appears that current education is not sufficient.*

Howell, Butler, Vincent, Watt-Watson, and Sterns (2000) found that an educational intervention improved treatment choices in a pretest-posttest design. Even three months after the training, results continued to improve in the area of medication administration for pain control. When these results are viewed in light of the current study, results are congruent. Education was also the predominant factor identified by Greipp (1992) for diffusing inhibitors of pain control, in her model of ethical decision-making.

The current means of educating students in the schools of nursing identified are not sufficient for meeting the needs of all students, as evidenced by the results of this

study. Nurse educators may deem it necessary to evaluate the current curricula and instructional methods used in schools of nursing to improve student understanding of pain assessment and management concepts.

Question #2: School of Nursing (By Program Level)

Conclusion: *The results of the study suggest that there were some differences in the students attending the two programs, in their understanding of pain management.*

When responding to the Robert vignette, 37.78 percent of the juniors at UT chose the correct dosage of morphine, while 59.38 percent of the juniors at TWC-FSN did the same. This was a difference of 21.60 percent between the two samples of junior students. When responding to the Robert vignette, 52.87 percent of the seniors at UT chose the correct dosage of analgesic, while 74.07 percent of the seniors at TWC-FSN did the same.

Junior nursing students at TWC-FSN and UT both had 29.63 percent of the sample that chose the correct dosage of morphine for the Andrew vignette. With senior students from UT, 41.98 percent of the sample chose the correct dosage of analgesic for Andrew, while 57.69 percent of the TWC-FSN students did the same.

Research Question #2: Discussion/Implications

These were disappointing findings that lead to the question of ‘why’ students were reluctant to increase the dosage of medication in the vignette, when 2 milligrams was ineffective in controlling the patient’s pain before. Written rationales provided by students on the instrument were helpful in answering this question. It is evident that the curriculum and instructional methods were not adequate for preparing students to determine correct dosages of analgesia. Many participants in this sample did not

understand the issue of ‘titration,’ or starting with a low dosage and slowly increasing it until pain relief is achieved. Morphine is a drug that has no ceiling in its dosage and can be increased until analgesia is achieved, if there are no untoward side effects. Students in this sample were reluctant to increase the dosage, despite high pain levels reported by the patient.

There were higher percentages of students from TWC-FSN who chose the correct dosage of morphine in the vignettes, when compared to students attending UT school of nursing. A possible explanation could be that many of the senior students at TWC-FSN had been exposed to the instrument one year prior to data collection because the Andrew-Robert survey was used as a learning tool in the classroom their junior year.

One may question the most effective way to educate students about treating pain with opioid analgesics. Would more hours in the curriculum allotted to pain management facilitate a deeper understanding of this issue? Do educators need to introduce more innovative instructional methods? Is it reasonable to expect students to retain and apply knowledge about treatment with opioids, after hearing a classroom lecture on the topic? These are difficult questions that warrant further examination within schools of nursing.

Research Question #3: What rationales do students identify for their correct and incorrect ratings of pain intensity and medication administration in response to the case vignettes?

A summation of all rationale categories derived from this study has been presented in chapter four as well as examples of student’s rationales. Reasons for students’ correct or incorrect assessments and interventions will now be discussed with conclusions and implications.

Rationales for Correct Pain Ratings

Conclusion: *The principle of accepting, respecting, and documenting the patient's self-report of pain was only one of the various reasons given by students in this sample for correctly rating pain intensity.*

In 1996, Field reported findings that were contrary to previous studies that had been identified in the literature at that time. Field suggested that nurses relied more upon patients' subjective reports of pain, rather than on behavioral manifestations. Many students' responses from the current sample supported this finding by correctly assessing pain and providing appropriate rationales based on the patients' subjective reports. A junior at TWC-FSN wrote, "Even though he is smiling, talking, and joking with his visitor, pain is a subjective finding. The patient stated 8, so chart an 8." A senior at TWC-FSN responded, "It was his rating of pain. My assessment would have been much lower, but he rated it." A senior at UT correctly assessed Robert in the vignette and wrote, "That is what the patient told me his pain was at. You can always make a comment, but I'd still write down what the patient tells me." Another UT senior replied, "He rates his pain an 8 so that is what is recorded." In response to the Andrew vignette, a senior at UT wrote, "Pain is what the patient perceives. So, patient's information is the most accurate pain measure."

A junior student from UT wrote, "Eight is the score that the patient gave, and since I am not him, I have no real way of knowing what pain he is really feeling. He may be pleasant to try to cover up what he's feeling." A senior at the same school responded to the Robert vignette by writing, "It is not my objective assessment, but his subjective opinion that counts with pain management." Another UT senior responded to the Andrew vignette in this way: "He said it was 8, it's not my place to second guess or

argue with him.” Similarly, another UT student responded, “Pain is what the patient says it is. You record what they say, not what you think their pain may be.”

Conclusion: *Reasons of ethical decision-making were among the various reasons given by students in this sample for correctly rating pain intensity.*

When asked what influenced their decisions to record pain intensity levels and choose dosages of medications, many students correctly responded with answers based on ethical obligations of the caregiver. A junior student at TWC-FSN wrote, “... Since pain is subjective, it is important to believe he is honest about his level of pain.” Another student from the same school wrote, “Patient stated he was at that level. I wouldn’t really believe him because of his actions but he may hide pain well or have an addiction, either way it isn’t my right to make that judgment.” Similarly, another TWC-FSN student responded, “Because that is what the patient stated and I don’t have the right to chart any other answer except what he told me.” In response to the Andrew vignette, a senior at TWC-FSN wrote, “I would have to trust what he said. Different people perceive pain in different ways and he could have been telling the truth.” Another TWC-FSN senior mimicked this rationale by writing, “If this is what he states his pain is, who am I to say he is lying...” Students at UT had similar responses.

Conclusion: *Similar to findings reported by Martin (2002), nursing students in this sample who correctly rated Andrew’s pain in the vignette, referred to ‘distraction’ as a possible reason for the atypical behavioral manifestations.*

Martin (2002) suggested that laughter and humor were beneficial in distracting patients from their pain and improving tolerance to it. Nursing students in the current study sample who correctly assessed patients in the vignettes referred to distraction as a reason why ‘Andrew’ may be talking and joking with the visitor. A junior at TWC-FSN

wrote, "...I wouldn't really believe him because of his actions, but he may hide pain well..." A junior student at UT replied, "...Some people can hide the fact that they are in pain and I think the best way to rate pain is based on the perception of the patient."

Another junior at UT wrote, "That is what Andrew stated. Even though he is smiling, talking, and making jokes, [this] does not mean that he is not in pain. This may just help him keep his mind off of it."

Conclusion: *It is evident from this sample that some students chose the correct pain intensity rating, yet, did so for incorrect reasons.*

There were students in the study who rated the patient's pain correctly in the vignette and gave incorrect reasons for doing so. Some students alluded to behavioral signs such as grimacing, as well as the date and type of surgery, when explaining why they chose to document an '8' on the 0-10 scale.

Rationales for Incorrect Pain Ratings

Conclusion: *Students in the sample chose incorrect pain ratings for patients in the vignettes due, in part, to behavioral signs and vital signs that did not seem to support the stated pain intensity level.*

Chuk (1999) suggested that patients' vital signs were an influential factor in nurses' assessment and treatment of pain. There was a statistically significant difference between the nurses' recorded pain intensity levels in the two vignettes used in the study. Nurses rated higher pain levels for the patient with elevated vital signs and also administered higher dosages of pain medication.

Nursing students from this sample also referred to the patients' vital signs as reasons for the decisions they made in response to the vignettes. A junior nursing student from TWC-FSN who chose an incorrect dosage of morphine in the Andrew vignette

wrote, "In assessing the patient, vitals are normal range; therefore, he needs no further pain meds at this time." A junior at UT provided the following reason for the incorrect assessment of Robert in the vignette: "Even though he is in pain because he grimaces, his heart rate is not up a great amount, so he is definitely in pain, but not extremely severe." Another junior at UT gave a similar rationale for an incorrect assessment in the Andrew vignette: "...His vitals are within normal ranges and he shows no physical signs of pain..."

A junior student at TWC-FSN stated, "His vital signs are only slightly elevated for what I would expect." Another junior from the same program stated, "The patient is probably experiencing some pain, but other than what he says, he demonstrates no other signs that he is having pain of 8 on a 10 point scale." A senior at UT stated, "My decision was influenced by the fact that the client was talking and joking. If he was in discomfort, he would be doing neither."

Conclusion: *Similar to the findings reported by Jacox (1979), students in this sample referred to the social stigma associated with patients who report pain.*

Jacox (1979) suggested that a social stigma might be associated with patients who report pain. This reason was given by some patients in the Jacox study for not reporting their pain, or trying to mask it.

Students in the current study also made reference to this stigma by referring to the visitor present in the Andrew vignette. A senior student at UT who incorrectly assessed Andrew's pain wrote, "...He could be pretending (lying) because of his friend/visitor." A senior student at TWC-FSN responded, "...He may not want to show his friend that he is in any pain, so he hides it."

Conclusion: *Junior students in this sample provided rationales for incorrect pain ratings that have not been identified in previous studies.*

A curious finding that has not been identified in previous studies was that of averaging subjective and objective findings to yield a numerical pain rating. This rationale emerged several times in the assessment of Andrew in the vignette. A junior student at TWC-FSN who incorrectly rated pain intensity wrote, “I gave a 4 [intensity rating] because he probably is in pain, but he’s probably exaggerating the 8 because he is smiling and joking. He probably would not be doing this if he really had pain level of 8.”

A junior student from UT responded,

“He says he is in a lot of pain (8) but he is joking and laughing with his visitor. His vitals are within normal ranges and he shows no physical signs of pain. A ‘6’ is somewhere between the ‘8’ he says and the ‘4’ you think he is, because of context clues.”

It is important to note that both examples provided above are from junior students. Juniors were in their first semester of the nursing program, and at the time of data collection, they had not yet encountered pain management content in the curriculum.

Rationales for Correct Dosages of Analgesia

Conclusion: *Students from this sample provided both correct and incorrect rationales for choosing the recommended dosage of morphine in the vignette.*

Correct rationales provided by students for choosing the recommended dosage of analgesic were identified. Students alluded to the fact that the patient continued to have elevated pain levels after the last dosage of morphine. Other students mentioned that no adverse effects had been noted from the previous dosage. Incorrect rationales for choosing the recommended dosage of morphine included references to behavioral cues as

signs of ‘real pain’ and the possibility that the patient may be ‘addicted’ to the medication, therefore, requiring a higher dosage for adequate relief.

Rationales for Incorrect Dosages of Analgesia

Conclusion: *The current study results supported those reported by McCaffery and Ferrell (1991), in which nurses said they chose not to increase the dosage of morphine because the patients in the vignette did not explicitly ask for more medication.*

A junior student from TWC-FSN who administered the incorrect dosage of pain medication to Andrew in the vignette provided the following reason: “Because he doesn’t appear to be in that much pain and I wouldn’t give him anything unless the patient asked for it.” A junior student at UT provided a similar response to the Robert vignette: “If he asks for more, give up to 3 mg every 1 hour, but do not give the max unless asked for. Do not want to build dependence to drug.” A senior at TWC-FSN who administered an inadequate dosage of morphine to Andrew in the vignette wrote, “First, does the patient indicate he wants pain medication? Second, begin with minimal dose unless otherwise indicated by the patient.” A senior at UT wrote, “If patient does not express need for pain relief, do not give him any medications.”

Conclusion: *A few nursing students from UT and TWC-FSN had similar concerns as those reported by McCaffery and Ferrell (1991) where nurses listed respiratory depression, addiction, and withdrawal as reasons for not increasing the dosage of morphine in the case vignettes.*

A junior student at UT who administered an incorrect dosage of morphine in the Andrew vignette wrote, “Because the patient still expressed pain and I don’t want to overdose the patient.” A senior student responding to the same vignette wrote, “He has not reached a comfortable state of pain management. Administering the smallest dose first is appropriate because it may achieve his goal and not oversedate him.” A senior

from UT administering an incorrect dosage to Robert in the vignette wrote, “He is allowed dosage-wise to get more so I would give him 1mg simply because I see lots of people need pain medicine psychologically to feel better, but I am not going to load him up just to sleep.”

Conclusion: *Many students in the current study sample were swayed by behavioral manifestations when choosing the medication dosage.*

In 1996, Romsing, Moller-Sonnergaard, Hertel, and Rasmussen reported that nurses overestimated the effectiveness of pain medications due to the children’s behaviors, such as playing and running. Many students in the current study sample were also swayed by behavioral manifestations. A junior student from TWC-FSN who chose the incorrect dosage of morphine for Andrew in the vignette gave the following rationale:

“He seems to not be having relief of pain, (even though I felt he wasn’t in that much pain). I feel that if he had a pain level of 8, he would not be joking around. I only gave 1mg to see how he would respond.”

A senior from TWC-FSN responded in this way to the same vignette: “He needs pain management, but it does not appear that he needs the maximum dose at this time as evidenced by physical signs and symptoms and nonverbal assessment.”

A junior from UT wrote, “I would give him 1mg of morphine since it is ordered and would wait to see if he showed any visible signs of pain before I would give him a higher dose.”

Conclusion: *Students in this study had misconceptions similar to those reported by Drayer, et al., (1999) where nurses failed to acknowledge the degree of pain the patient was experiencing.*

In a study conducted by Drayer, Henderson, and Reidenberg (1999), nurses stated, ‘What he is getting now is enough or maybe even too much,’ and ‘Seems pretty

well controlled.’ A junior student from UT gave the following rationale for an incorrect dosage in the Andrew vignette: “He is not feeling a lot of pain, so the morphine ordered ‘as needed’ is not needed at this time.” A UT senior wrote this similar response: “Since he is not at the worst pain/discomfort, I would administer 2mg.”

Conclusion: *The results of the current study were similar to the findings reported by Holm, et al., (1989) where the nurses’ assessments of patients’ in pain were significantly influenced by their own personal pain experiences.*

A senior student from UT who incorrectly rated Robert’s pain in the vignette provided this rationale, “His vital signs are stable, but I have had abdominal surgery and I know how painful it is.” Another senior from the same school who correctly rated Andrew’s pain in the vignette wrote,

“If the patient says 8, I must agree with him. I myself had major abdominal surgery when I was 21 and I acted just like Andrew, yet my pain was also an 8-10. I just simply had a high pain tolerance and did not show it much. Thus, I must believe that this is a possibility here.”

Incorrect Pain Ratings and Dosages of Analgesia (Senior Students Only)

Conclusion: *Senior students from both schools of nursing had misconceptions similar to those of junior nursing students.*

It was anticipated that junior students might have incorrect beliefs about assessing pain and choosing dosages of analgesics, because they had not encountered pain management in the curriculum. However, after senior students’ rationales were disaggregated from the entire sample, it was found that senior students from both schools of nursing had some of the same reasons that junior students had for their incorrect choices.

Research Question #3: Discussion/Implications

The written rationales provided by students for their assessment and treatment decisions added depth to this study. Conclusions evolved from correct and incorrect pain ratings as well as correct and incorrect dosages of morphine in the vignettes.

It was encouraging that many students understood the principle of accepting, respecting, and documenting the patient's self-report of pain. Others included statements about the ethical responsibilities of a nurse. It was a positive finding that some students recognized that Andrew in the vignette may be using distraction as an alternative comfort measure.

As expected, rationales for incorrect pain ratings included references to the behaviors and vital signs that were within normal limits. Other students were cognizant of the visitor present in the patient's room (in the vignette) and felt that his presence may have had an impact on the way he behaved or reported his pain level.

Surprisingly, a reason given by other junior students in this sample for incorrectly rating pain intensity had not been found in previous research studies. Students calculated a 'middle ground' or 'average' by recording a rating that was somewhere between the patient's self-report and the number they believed to be correct, based on the patient's behavior. One may question how this reasoning originated. Did someone teach students this, or did they come up with it on their own?

Many students chose to increase the dosage of morphine in the vignette for both patients, despite their behaviors. It would be interesting to conduct an interview with those students who correctly assessed and treated the patients in the vignettes, to further investigate their ways of knowing and their means of learning this principle. Were they

more influenced by information learned in the classroom or in the clinical setting? Do they feel that accepting self-reports of pain speaks more to their character or their knowledge level?

Many of the rationales provided by students in this study for choosing the incorrect dosage of analgesia were similar to findings from other research studies. It was disappointing that senior nursing students had some of the same misconceptions as junior students about pain assessment and treatment, despite having been taught this content in the classroom one year prior to data collection. Many of the senior students had also participated in clinical experiences that allowed them the opportunity to provide care for patients experiencing pain. Why do senior students continue to operate under false pretenses, despite being taught otherwise? Are nurse preceptors in the hospital setting having a negative influence on students' choices surrounding assessment and treatment? Are there hidden extraneous variables that would prevent a student from rating and treating pain based on the patient's stated pain level? These questions are worth exploring.

Additional Conclusion

Conclusion: *The Andrew-Robert case vignette may need refining, based on the findings that emerged from this sample. A number of students in this study provided rationales for choosing incorrect dosage of morphine, which made it evident that they did not fully understand the scenario presented.*

Curiously, some students in this sample commonly misread (or misunderstood) the case vignette and believed it to mean something different from the intended purpose. The Andrew-Robert vignette has been used in numerous studies; however, this problem has not been identified or accounted for in the literature. When students read the second

portion of both vignettes, they mistakenly thought the patients' pain levels were '2' or '6-8' on the pain scale. The vignette actually states, "Half hourly pain ratings following injection ranged from 6 to 8...He has identified 2 as an acceptable level of pain relief." Many students took it as though the patient's pain was currently at an acceptable level. For example, rationales for incorrect dosages of morphine from students at both nursing programs are as follows:

- "He has identified 2 as an acceptable level of pain relief."
- "His pain level is now 2, so there is no need for morphine."
- "He has verbalized to me a 2 on the pain scale and this is acceptable to him at this time."
- "Patient still states 6-8 pain; administer 1 [mg] and go from there."
- "He tolerated the previous dosage well and pain level is still 6-8..."
- "He is still having pain of 6-8 and no problems with morphine..."
- "He now rates it as 2 whereas before it was 6-8..."
- "The fact that he rates his pain at 2..."
- "Patient is comfortable with 2/10 [pain intensity rating]."

These findings indicated one of two things. Either the students were not reading the vignette closely enough, or the contents of the vignette were not clear to the students. One may question whether the students understood the phrase, 'an acceptable level of pain relief.'

This leads one to question whether other participants in previous studies using this vignette have made similar mistakes. It would be interesting to interview these students to see if they, in fact, read the vignette too quickly and overlooked key words, or if they

perceived the vignette to be confusing and easily mistaken. If this were so, the validity of the vignette for research purposes would be compromised. One could legitimately project that future studies may also have participants who misread the scenario.

Recommendations

In order to fully sequester the problems in pain management and foster dissolution of the issues for the betterment of society, the following recommendations are offered:

Future Research

1. Conduct a replication study using the current design with samples of nursing students from different programs and different areas of the country. Such a study could help identify the magnitude of the problems identified in this study.
2. Conduct a study similar to the current study with a pre/post-test design, testing the same group of students in their junior year, and then again in their senior year. This study should show individual progression of knowledge about pain assessment and treatment, based on classroom and clinical experiences and help identify program strengths and weaknesses.
3. Conduct a study with the same design as this one, but instead, use McCaffery and Ferrell's vignette depicting patients with different vital signs, rather than different behaviors. This study would offer additional information about the efficacy of teaching pain assessment by subjective report.
4. Design and conduct a study (observational) to determine nursing students' pain assessment techniques and interventions with actual patients in the clinical setting. Coupled with student responses from a case vignette (using the same

sample), results could show whether or not responses to vignettes are similar to interventions implemented in actual patient situations.

5. Design and conduct a pre/post-test research study to determine the effectiveness of the Andrew-Robert case vignette as a learning tool in the nursing classroom. Using this vignette as a classroom learning exercise may enhance students' knowledge about pain assessment and management.
6. Conduct additional research studies with larger representation from various racial and ethnic groups. Results could show whether or not there are differences in pain assessment and/or treatment among students or nurses from different ethnic groups.

Refining the Instrument

1. Further refine the 'Andrew-Robert' case vignette so that its wording does not serve as a stumbling block for respondents. These changes, in particular, may help with instrument validity and reliability when used in research.
2. Continue to include Question B and Question D, added by the researcher for the current study, in the case vignette. Eliciting rationales for assessment and treatment choices provides the researcher with qualitative data in addition to quantitative data, which adds depth to findings.

Theoretical Frameworks

1. Continue to develop studies designed to test Patricia Benner's theory of advancement from novice to expert. These studies could assess the knowledge of students at various levels of the nursing program, as well as graduates. They

could provide rich data for those personnel responsible for designing and evaluating nursing program curricula.

2. Continue to use 'Greipp's Model of Ethical Decision Making in the Management of Client's Pain' in research studies. Studies using this model serve as a platform for identifying learned potential inhibitors of pain control and emphasize educational initiatives to combat the problems.

Schools of Nursing

The results of the current study have implications for nursing education, curriculum, and instruction. It is hoped that the findings will encourage nurse educators and commend them for their efforts, as well as point to areas where improvement may be warranted.

Many junior students in the sample tended to assess based on behavioral factors rather than on subjective ratings provided by the patient. This suggests that students enter nursing programs with inaccurate knowledge and beliefs about pain assessment. Faculty must acknowledge this fact and deal with it early in the curriculum. This researcher recommends that students' knowledge, attitudes, and misconceptions be addressed before presenting new content.

Senior students in the sample were more advanced in their knowledge as a group; however, there were still many who were not assessing pain based on the patient's self-report. Nursing faculty may deem it necessary to revisit the topic of pain assessment late in the course of study to assure that students are not reverting back to their original inaccurate methods of assessing pain. This was the case in a study reported by Howell, Butler, Vincent, Watt-Watson, and Stearns (2000) where nurses' pain-rating scores

increased immediately after the educational intervention, but dropped again three months later. Nursing faculty may wish to consider the written rationales provided by students in this study as a springboard for teaching future students the common myths and misconceptions held by students.

The results of this study suggest that the educational experiences have been helpful, although not fully adequate, in preparing students to assess and treat pain. Nursing curricula at both schools of nursing should include recent findings in pain research and incorporate McCaffery's definition of pain and the concepts surrounding this definition into classrooms and clinical experiences.

The results of this study yielded rich qualitative data in the form of student rationales for their assessment and treatment choices. Incorrect rationale categories identified by students in this sample may be beneficial to use in future classroom settings to ensure that other students do not hold the same misconceptions.

Based on the findings from this study, students should be taught not only to report and document patients' self-reports of pain, but also follow through with recommended amounts of pain medication. Further instruction is necessary in this area so that students are not reluctant to administer increasing dosages of opioids when they are needed.

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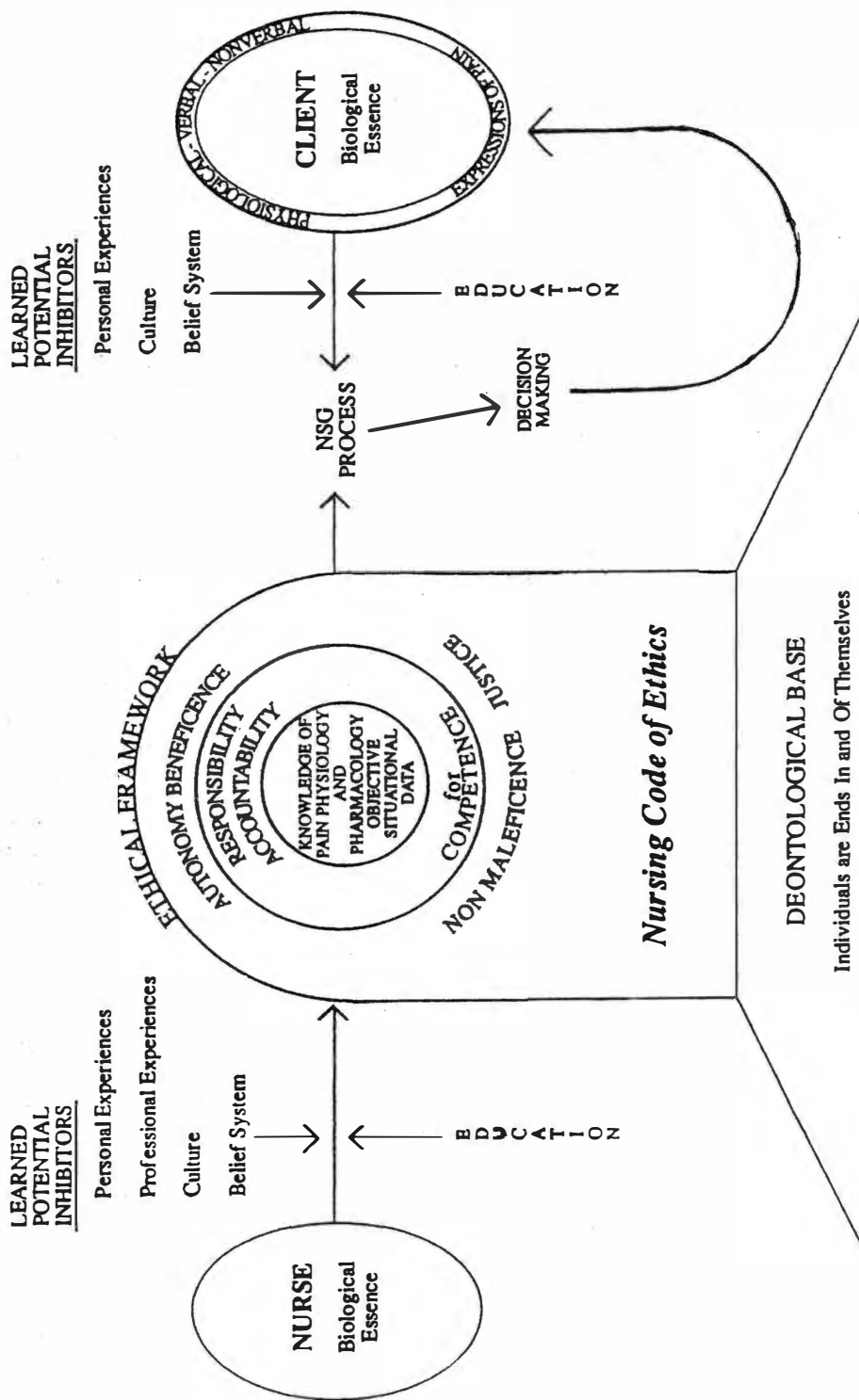
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APPENDICES

Appendix A

Greipp's Model of Ethical Decision Making In the Management of Clients' Pain

GREIPP'S MODEL OF ETHICAL DECISION MAKING IN THE MANAGEMENT OF CLIENTS' PAIN



Appendix B
Informed Consent Form

INFORMED CONSENT

Nursing Students' Assessment Ratings and Treatment Choices For Patients Experiencing Pain in a Case Vignette: Implications for Nursing Education

You are invited to participate in this research study that is designed to evaluate junior and senior nursing students' assessment of pain. The study consists of responding to two case vignettes and completing a demographic questionnaire. Estimated time for completion is 10 minutes. Your responses are anonymous and will remain confidential. Your name will not be identified in any publication or presentation, nor will individual answers lead to your identification.

Your participation in this research study is completely voluntary. You have the right to refuse participation and you may withdraw from the study at any time. There is no penalty or loss for refusing to participate. If you choose not to participate, simply turn the questionnaires in blank.

I have read this consent form and understand the contents. I agree to participate in this study as described above. I understand that my participation is voluntary and there is no risk for refusing to participate or withdrawing at any time.

Participant's Signature _____ Date _____

Appendix C

Case Vignettes
(Andrew-Robert Survey)

Directions: Two patient case studies are presented. For each patient you are asked to make decisions about pain and medication.

Patient A: Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

- A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain.

0	1	2	3	4	5	6	7	8	9	10
<i>No pain/ discomfort</i>					<i>Worst pain/ discomfort</i>					

- B. What influenced your decision and led you to record this intensity level?
- C. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3mg q 1h PRN pain relief." Check the action you will take at this time.
- _____ 1. Administer no morphine at this time.
 - _____ 2. Administer morphine 1 mg IV now.
 - _____ 3. Administer morphine 2 mg IV now.
 - _____ 4. Administer morphine 3 mg IV now.
- D. What influenced your decision and led you to choose this dosage of pain medication?

Patient B: Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

- A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew's pain?

0	1	2	3	4	5	6	7	8	9	10
<i>No pain/ discomfort</i>					<i>Worst pain/ discomfort</i>					

- B. What influenced your decision and led you to record this intensity level?

C. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3mg q 1h PRN pain relief." Check the action you will take at this time.

- _____ 1. Administer no morphine at this time.
- _____ 2. Administer morphine 1 mg IV now.
- _____ 3. Administer morphine 2 mg IV now.
- _____ 4. Administer morphine 3 mg IV now.

- D. What influenced your decision and led you to choose this dosage of pain medication?

Appendix D

Demographic Questionnaire

Demographic Questionnaire

Please provide the following information about yourself. All information on this form is kept confidential.

1. School of Nursing/ Education Level

_____Tennessee Wesleyan College/ _____Junior _____Senior _____RN to BSN

_____University of Tennessee/ _____Junior _____Senior _____RN to BSN _____MSN

2. Gender

_____Female

_____Male

3. Ethnic Background

_____African-American _____Caucasian _____Asian-American

_____Hispanic/Latino _____Other _____

4. Age

_____Under 21 _____21-30 _____31-40

_____41-50 _____Over 50

5. Prior to nursing school, did you experience formal education or training related to pain assessment and/or treatment of pain?

_____Yes

_____No

6. Have you personally experienced moderate or severe pain (acute or chronic)?

_____Yes

_____No

7. Have you personally cared for someone with moderate or severe pain (acute or chronic)?

_____Yes

_____No

8. Have you ever seen or completed the attached pain assessment tool (or one similar to it)?

_____Yes

_____No

Appendix E

Permission from Lippincott, Williams, and Wilkins
to use Greipp's Model of Ethical Decision Making



April 8, 2004

Crista L. Briggs, MSN, RN
Tennessee Wesleyan College-
Fort Sanders Nursing Department

VIA EMAIL TO: cbriggs@twcnet.edu April 8, 2004

FEE: NONE

RE: Mary Elizabeth Greipp "Undermedication for pain: an ethical model
Advances in Nursing Science 1992 Sept; 15(1): 44-53

USE: Thesis

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VITA

Crista Mefford Briggs was born in Evansville, Indiana on August 11, 1974 to Steve and Vickie Mefford. She resided with her parents and one brother in Belton, Kentucky until graduating from Muhlenberg South High School in 1992.

Crista received a Bachelor of Science in Nursing (BSN) degree from Western Kentucky University in 1996. While attending nursing school, she was inducted into the Sigma Theta Tau International Honors Society for Nurses, and graduated Cum Laude. She was employed as a registered nurse in a rehabilitation hospital for three years and then accepted a position as a school nurse in Warren County. During this time, Crista attended graduate school at WKU. She completed the Masters of Science in Nursing (MSN) degree in 2001 and soon accepted a faculty position at Tennessee Wesleyan College-Fort Sanders Nursing Department in Knoxville, Tennessee.

In the fall of 2002, Crista entered a doctoral program in the College of Education, Health, and Human Sciences at The University of Tennessee. She was awarded an Ed. D. in the summer of 2004 with a concentration in Curriculum, Educational Research, and Evaluation. In August 2004, she became a full-time faculty member in the College of Nursing at her Alma Mater, Western Kentucky University.

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